THE OIL WEEKLY

ENGINEERING • NEWS • STATISTICS

EDITORIAL STAFF

WARREN L. BAKER
Editor

J. KENT RIDLEY
Managing Editor

ASSOCIATE EDITORS

L. J. LOGAN — WM. V. GROSS

DISTRICT EDITORS

B. F. LINZ.....Washington
J. V. HIGHTOWER.....New York
FRANK TAYLOR.....Tulsa
H. H. KING.....Fort Worth
EARL S. POST.....San Antonio
R. W. BYRAM.....Austin
ELTON STERRETT, GILBERT M. WILSON, GORDON B. NICHOLSON, RIVERS REAVES.....Houston

PUBLISHED BY

THE GULF PUBLISHING COMPANY

HOUSTON, TEXAS

R. L. DUDLEY, *President*
A. L. BURNS, *General Manager*
S. W. ROBINSON, *Editorial Director*
TOM W. NELSON, *Advertising Manager*

Staff correspondents at all important points.

Member Audit Bureau of Circulation
Member Associated Business Papers, Inc.

BRANCH OFFICES

NEW YORK.....250 Park Ave.
PITTSBURGH.....Vandergrift Bldg.
CHICAGO.....332 S. Michigan Ave.
LOS ANGELES.....W. W. Wilson Bldg.
Huntington Park, Calif.
TULSA..... Hunt Bldg.
FORT WORTH.....W. T. Waggoner Bldg.
WASHINGTON.....Albee Bldg.

ADVERTISING STAFF

DICK SWINSKY.....New York
C. A. WARDLEY.....Pittsburgh
H. G. FITZPATRICK.....Chicago
J. C. CARTER, JR.....Tulsa
JAY CURTS, JR.....Los Angeles
CHAS. WYATT.....Houston

CIRCULATION DEPARTMENT

J. T. WAGONER.....Manager

SPECIALIZED OIL JOURNALS

Published by

THE GULF PUBLISHING COMPANY

The Oil Man's Calendar

NOV. 3–7	American Petroleum Institute, Annual Meeting, San Francisco.
13–14	American Association of Oil Well Drilling Contractors, Annual Meeting, Dallas, Texas.
DEC. 3	New Mexico Oil & Gas Association, Artesia.
5	Oklahoma Stripper Well Association, Tulsa.
FEB. 26–27	American Petroleum Institute Division of Production, Southwestern District, Dallas, Texas.
28	North Texas Oil & Gas Association, Wichita Falls, Texas.

Contents • November 3, 1941

Volume 103, Number 9

The Changing Panorama..... 53

Feature Section:

The Past Twenty-Five Years in Oil—Beginning of a New Era 55
By RAY L. DUDLEY

Well Drilling Methods 63
By JOHN J. CONNELLY

Drilling Equipment 77

Modern Prospecting a Broad and Complex Science.... 97
By WARREN L. HASTE

Pipelining Over a Quarter-Century.....106

Personal Experiences in 21 Years of Oil Reporting.....113
By GRADY TRIPLETT

Practical Operating Hints for the Drilling Rig.....216

Why Stocks Should Be Increased.....223
By L. J. LOGAN

Washington Roundup.....225
By B. F. LINZ

News Section and Index.....219

Looking Ahead With the Editor..... 2
Editorial Comment 223
A.P.I. Program 229
Men in the Industry's News.....264
Notes for the Equipment Buyer and User.....269
Squeaks From the Bull Wheel.....266
Index to Advertisers.....272

Published every Monday. Single Copies 15 cents (Special Issues 50c). Subscription price: domestic and foreign, $2.00 a year; 2 years $3.00. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879. Subscription restricted to those engaged in the producing and pipe line branches of the oil industry or the manufacturing and distribution of oil field supplies. Advertising rates on application.

Copyrighted 1941 by The Gulf Publishing Company.

• Don't let today's pressure cause you to lose sight of the fact that the turret lathe you buy today will be in your service *long after the present emergency is over.* There are many "Extras" in addition to the fine quality of the machine tool itself, which make it well worth while to make sure your new turret lathe is a Warner & Swasey. Some of these important extras are:

★ **DESIGN FEATURES,** in a complete line of Ram and Saddle Type, from ⅜" to 12" bar capacity, that insure better accuracy, higher speeds, and greater ease of operation.

★ **A LARGE INVENTORY OF PARTS** for prompt maintenance of all models of Warner & Swasey Turret Lathes. *A Warner & Swasey Turret Lathe never becomes an orphan!*

★ **COMPLETE REFERENCE RECORDS** maintained on every machine in service.

★ **A COMPLETE LINE** of the most modern bar and chucking tools.

★ **FIELD ENGINEERS** for on-the-spot studies and recommendations.

★ **FACTORY ENGINEERS** who check your methods, make time studies, improve setups, and if necessary, design and build special tools.

★ **SERVICE MEN** who are practical demonstrators and shop assistants in your own plant.

★ **OPERATOR TRAINING SERVICE**—a special department to make men better turret lathe operators.

Perhaps some of these Warner & Swasey "Extras" can be helpful to you right now. Write

WARNER & SWASEY
Turret Lathes
Cleveland

YOU CAN TURN IT BETTER, FASTER, FOR LESS...WITH A WARNER & SWASEY

Twenty-five Years of Service

TWENTY-FIVE YEARS ago this month The Gulf Publishing Company was incorporated for the purpose of publishing an oil journal specifically, and generally to engage in all phases of the publishing business. At that time the company was already publishing *The Gulf Coast Oil News* in newspaper form. November was spent in transition from newspaper to magazine, and the first issue of the company's magazine publication, the name of which was changed in 1918 to THE OIL WEEKLY, was put in the mails the first week in December, 1916.

On the list of incorporators appeared the names of many oil men well known in Southwestern oil affairs, and while today the stock ownership of The Gulf Publishing Company lies better than 65 percent in the hands of employes of the company, the names of many oil men who are directing institutions of national and international importance, still are to be found on the list of stockholders.

This issue therefore celebrates 25 years of service on the part of THE OIL WEEKLY, although it is not a "birthday issue," as a reading of its contents will show.

From its small beginning in 1916 The Gulf Publishing Company has grown to a position of importance and influence in petroleum affairs throughout the world. The 450 square feet of space occupied by the company in 1916 has grown to more than 33,000 square feet in 1941. Its list of employes has grown from 4 in 1916 to 200 in 1941. It owns the largest and most modern publishing plant in the Southwest.

Its list of publications has grown in 25 years from one to five, THE OIL WEEKLY, *The Refiner & Natural Gasoline Manufacturer, The Composite Catalog of Oilfield & Pipe Line Equipment, The Refinery Catalog,* and during one week each year, still another publication, *Daily Oil News.*

The growth of The Gulf Publishing Company has closely paralleled the growth of the oil industry. Constantly expanding its editorial service, hardly a year has passed during the past 25 when some important addition to service was not instituted by the company.

Today the two publications which cover the production and refining branches of the oil industry, THE OIL WEEKLY and *The Refiner & Natural Gasoline Manufacturer,* both members of the Audit Bureau of Circulation, both members of the Associated Business Papers, have paid circulation, each in the branch of the industry it serves, far greater than that of any other oil publication. In the production branch THE OIL WEEKLY penetrates and covers with paid circulation the oil organizations producing nearly 90 percent of the world's production, while in the refining field the percentage covered is in excess of 98 percent.

The two composite catalogs, one serving the production branch and the other refining, are eminently successful—each having contributed a new and needed service to the oil industry.

But this growth of The Gulf Publishing Company is not the result of the work of the management or the staff alone. A cordial feeling of friendship on the part of the oil industry toward our efforts is in large part responsible, and on this, our twenty-fifth anniversary, we wish to acknowledge our debt of gratitude to the industry, to express our thanks, and to pledge our efforts toward a continuation of free enterprise in an industry in which free enterprise is a requisite to its service to mankind.

Return of Tankers Has Significance

Work of OPC to Change; Big Pipe Line Dead; British Situation Improved

Great Britain's return of 40 tankers that had been loaned to her by the United States is an event of significance, indicating several important future developments.

In the first place, the return of the tankers means that transportation facilities for moving Gulf Coast oil to the Atlantic Seaboard are augmented considerably. Consequently, danger of an East Coast oil shortage is a thing of the past, at least for the time being. Already gasoline rationing in the region has been lifted, which forecasts an increase in Eastern consumption. This will require the movement of larger quantities of petroleum, which in turn will necessitate the production of greater volumes of crude oil in Texas.

The return of the tankers also is indicative that the principal work of the Office of Petroleum Coordinator must shift to new phases. In the past, the Office of Petroleum Coordinator has dealt largely with the feared shortage of petroleum supplies in the East, with efforts specifically devoted toward improving the crippled East Coast transportation facilities and curtailment of consumption. Now that the East Coast situation appears taken care of, the principal job of the Office of Petroleum Coordinator in the future should be to encourage construction of additional aviation gasoline manufacturing facilities, boosting of production and field discovery rates. Because sufficient steel to permit expansion will be required to accomplish these aims, an important job of the Office of Petroleum Coordinator will be to see that the industry gets proper metal priority ratings.

Return of the tankers probably means that the much talked of $80,000,000 pipe line from Texas to the upper Atlantic Coast is very unlikely to be constructed. Such a line appears not to be needed now, although some may still think it desirable on the grounds it would be more difficult to bomb than a tanker. However, the vast quantities of steel it would require can be used to greater advantage elsewhere. It was fortunate that the construction of this project was not plunged into under duress of the East Coast emergency, which turned out to be temporary.

Furthermore, the return of the tankers indicates that Great Britain surely has improved her petroleum situation. Apparently England has built up stocks of petroleum to the point that she feels the return of the tankers is not dangerous. It also is to be concluded that Britain is gaining in the Battle of the Atlantic, for if sinkings of English supply boats had not diminished considerably the tankers no doubt would have been held in reserve instead of being released.

Record Tanker Shipments . . .

Although Great Britain was still using all the tankers the United States had loaned to her, movement of petroleum products by water from the Gulf Coast to the Atlantic Seaboard was at an all-time peak during the month of September, when 40,457,566 barrels were carried by tankers and barges. This was the second time in history that more than 40 million barrels had been moved by water in a month, the other being 40,134,000 barrels shipped in January, 1941. These figures do not include the increased volumes moved to the East via pipe lines and tank cars.

The nearly 40½ million barrels of Gulf Coast petroleum carried by tanker and barge to the Atlantic Coast during September, compared with 36,405,720 barrels in August this year, and only 32,738,000 barrels in September a year ago.

So far during 1941 (January through September) 335,759,286 barrels of petroleum have been moved by tanker and barge from the Gulf Coast to the East Coast. This is 16,873,000 more barrels than shipped in the corresponding period of 1940, a year when shipments were at then all-time peaks.

Thus, despite the tanker diversion, water movement of petroleum has been at record levels during 1941, and is consistently climbing to greater heights. Now that Britain has returned some of the tankers, movement of petroleum by water from the Gulf Coast to the Atlantic Coast may be expected to soar to even larger volumes.

Indications are that shipments from the Gulf Coast to the Atlantic Coast by tanker and barge may reach a total of 450,000,000 barrels for the year. This would be in contrast with 428,000,000 barrels moved in 1940.

Improved Equipment . . .

From Washington during the past several months has come the frequently reiterated word that the oil industry is to do a heavy drilling job with less steel than formerly used. Now that the figures as to the number of wells which will be necessary in 1942 have climbed to 32,000, it seems probable that the amount of steel which will be allocated to the oil industry will have to be larger than was contemplated sometime back.

A few weeks ago we feared, from statements made, that the powers that be in Washington might look askance at equipment of new design, but the more we have thought on the subject of drilling more wells with comparably less steel, the more apparent it is that the oil field equipment industry cannot lag in design. On the contrary, it seems obvious that an improved tool which will do the necessary work more efficiently will be in heavy demand. We think that this principle will be recognized in priorities, as it certainly should be.

American inventive genius has contributed greatly to the development of the oil industry as is shown in several interesting articles in this issue of THE OIL WEEKLY. The war demand for petroleum products will challenge the best efforts of the American designer of oil country equipment and the concerns which manufacture it. We take it for granted that with proper cooperation from the government, that this challenge will be met successfully.

Portable Pipe . . .

Portable pipe lines that can easily be moved from point to point for installation over difficult terrain to carry gasoline supplies to motorized units in the field have been developed by the Army, it was disclosed during the week by the War Department.

The pipe line comes in self-contained half-mile units, each complete with a centrifugal pump driven by a 20-horsepower gasoline engine. Each half-mile unit can be moved by cargo trucks and used independently of any other unit.

These self-contained sections, alone or in combinations, are said to be able to deliver gasoline through swamps and forests or over mountains at a rate of approximately 200 gallons per minute. The pipe also can be used to assist or even replace floating gasoline tanks for ship-to-shore operations.

The Past 25 Years in Oil

Beginning of a New Era—1917-22

By RAY L. DUDLEY, Publisher

IN WRITING the history of the past 25 years in the oil industry it is found that the first 7 of these years, beginning with the war year of 1917, have proven to be the formative years in a new era in oil.

During these years the use of modern methods began to replace, in substantial part, the old rule-of-thumb methods. Engineers began taking their place within the industry. In the exploration branch, geophysics had entered the industry, subject to an improvement which has not yet ceased.

During that period most of the present proven areas, at home and abroad, either had started development or were under exploration.

Oklahoma had opened the rich Osage. Western Oklahoma was under development before the period ended; longing eyes were being turned to Oklahoma City even then. The Los Angeles Basin fields of California had received a big start. Arkansas was in the producing column. Not only had West and North Texas become productive in a big way, but they had been in development long enough to influence heavy exploration work in New Mexico. The Woodbine-sand and Balcones-fault fields of Central Texas had been opened. The empire of South Texas was producing. Deep drilling in the Gulf Coast areas had started. These years saw the Rocky Mountain area blossom with many of its best fields to date.

Abroad this period saw Venezuela, Colombia, parts of Argentina and new areas in the Dutch East Indies opened up for production, and even in the Near East work had begun.

The writing of this history has required much more space than was originally anticipated. And because there is no desire to make this issue of *The Oil Weekly* a book involving only one feature, it has been decided to publish the beginning of the history — covering the period of these 7 formative years from and including 1917 to and including 1922.

The history of the remainder of the period has been almost completed, and will be presented in piece-meal form, a year at a time in future issues. The first such installment will appear in *The Oil Weekly* of December 8.

WHEN one attempts to write a history of a twenty-five year period, even though it be a period personally known to the writer, the frailties of human memory become only too apparent.

I have found this the case in the pleasant task of attempting to record the history of a great industry during the quarter-century of its greatest development.

To refresh my memory, the pages of THE OIL WEEKLY, and its predecessor, THE GULF COAST OIL NEWS, have been used as a notebook of reference.

For this reason a part of the history may appear to be somewhat lopsided, because THE GULF COAST OIL NEWS, and even THE OIL WEEKLY, during the first few years of its life, covered only a part of the oil world. But as the history progressed, the magazine grew and the happenings recorded became more world-wide.

This is not intended to be a history of dates or statistics. And in its attempts to picture the growth of the oil industry with a glimpse into the customs and lives of those who made it, it cannot be called complete—nor in fact is it intended to be.

More in the nature of a reminiscence of a quarter-century, it has brought to the writer bits of history which though not important now had a real part in the life of oil men then. Otherwise a reference to establishment of Pullman service between Ranger and Dallas would seem trivial. But to the thousands whose convenience and comfort were served more than 20 years ago, it was front-page news when first it was published.

For the mention of the names of individuals in our pleasant task of recording the events of the past 25 years we offer no apology. Their names have come into the story because the men themselves were in it. But we do tender our apologies to those hundreds and even thousands of men whose names should have been included but were not. Only space limitations have been responsible and to one who asks, "Why did you not refer to ————, his work was as important as that of anyone you named?" we will say immediately that this may be so—but in the writing of many words there are as many opportunities for dereliction as there are for recording

Some day the writer would like to

publish a record of the story behind the story, of how, for instance, it was that THE OIL WEEKLY had the story in type of the death of Carranza two days before he was killed; of who it was who hid behind low bushes and watched T. P. Lee and other Republic Production Company officials, at night, bring in the mystery well at Hull, of who wrote the pamphlet which ridiculed A. C. Bedford, a pamphlet distributed at a Chicago convention immediately after the A.P.I. was formed — a pamphlet which, though cleverly written, was accorded by those present at the meeting as being in poor taste.

Some day, perhaps—

Today, as this is written, we look backward 25 years, see a youthful industry about to put on the full habiliments of manhood, see men emerging from the obscurity of the ranks into positions of leadership. It is not strange that they showed the characteristics of leadership then—it was the fact that they had them sufficiently to emerge, that has made them great since. As the study of the quarter century has moved in review, it has become more and more apparent that the oil business has been no place for the four-flusher.

There must be no implied disparagement of those who made oil history from the time of Colonel Drake down to the beginning of the past quarter century—the petroleum industry and the world owe those generations a genuine debt. They started things and they did a good job.

The past 25 years built on the work of the previous 50. Science entered the oil industry in a big way. Individualism still held sway, but unbridled competition of the type which stifled the competitor gave way to a new set of rules.

What the future holds for the oil man no one can say. His products will be in enlarged demand when this World War No. 2 is over. How he will operate remains to be seen. Will he surrender to bureaucracy when our emergency is over, or will he remember the shades of the fighters of the past 25 years, and fight any compromise which would make him the unwilling tool of the politician?

Time only will tell. But to those who have had a part in them, these past 25 years will have imparted something which cannot be taken from them.

Truly they have been epochal years.

1917...War!

NINETEEN - SEVENTEEN opened with lowering war clouds, and a troubled labor atmosphere. Steadily the consumption of petroleum products had been rising, but production, sagging after the Cushing boom, was threatening not to keep pace.

Then in April, heralded by the sinking of American shipping in which tanker losses were heavy, came the declaration of war. Petroleum was to play a war-time role it had never played before, a minor rehearsal of the role it is now playing in the far-flung fronts of World War No. 2.

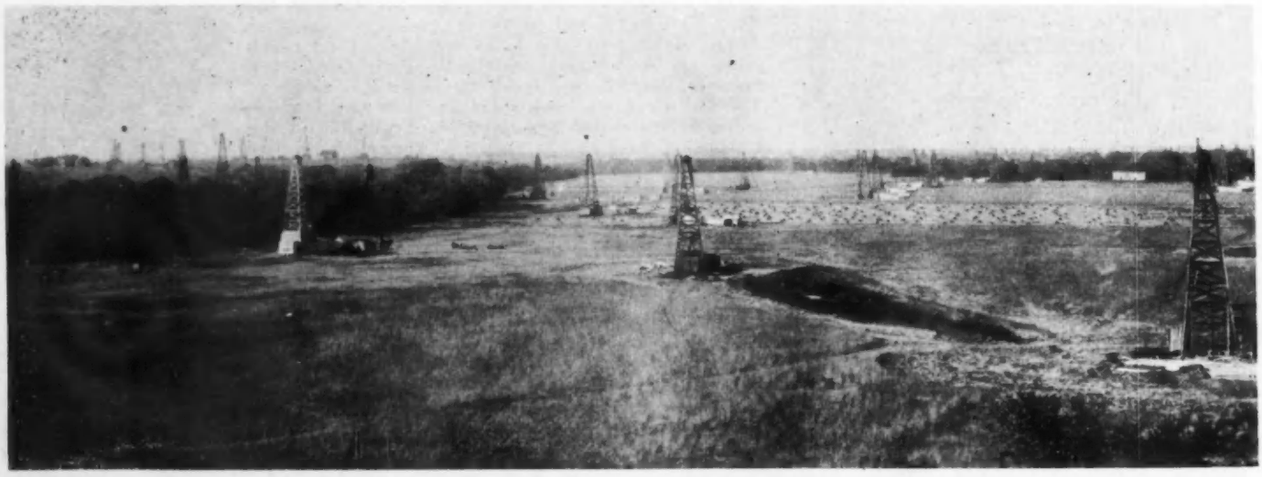
The United States Navy and the British Navy were largely oil burning. The surge of construction by the Navy, brought about by the year of "preparedness" covering 1916, was to be increased and oil was to provide the motive power. An order for 25,000 Army trucks placed shortly after the declaration of war emphasized that fuel, not forage, would move the troops.

So acute was the situation that A. C. Bedford, named chairman of the Petroleum Committee of the Advisory Commission of the Council of National Defense, later simplified to read the Petroleum War Service Board, issued a warning to the public in the late summer, to conserve petroleum. Bedford said the country was consuming 335,000,000 barrels of oil and producing only 300,000,000 barrels, despite an unprecedented number of wells being completed, 4701 for the first three months of the year.

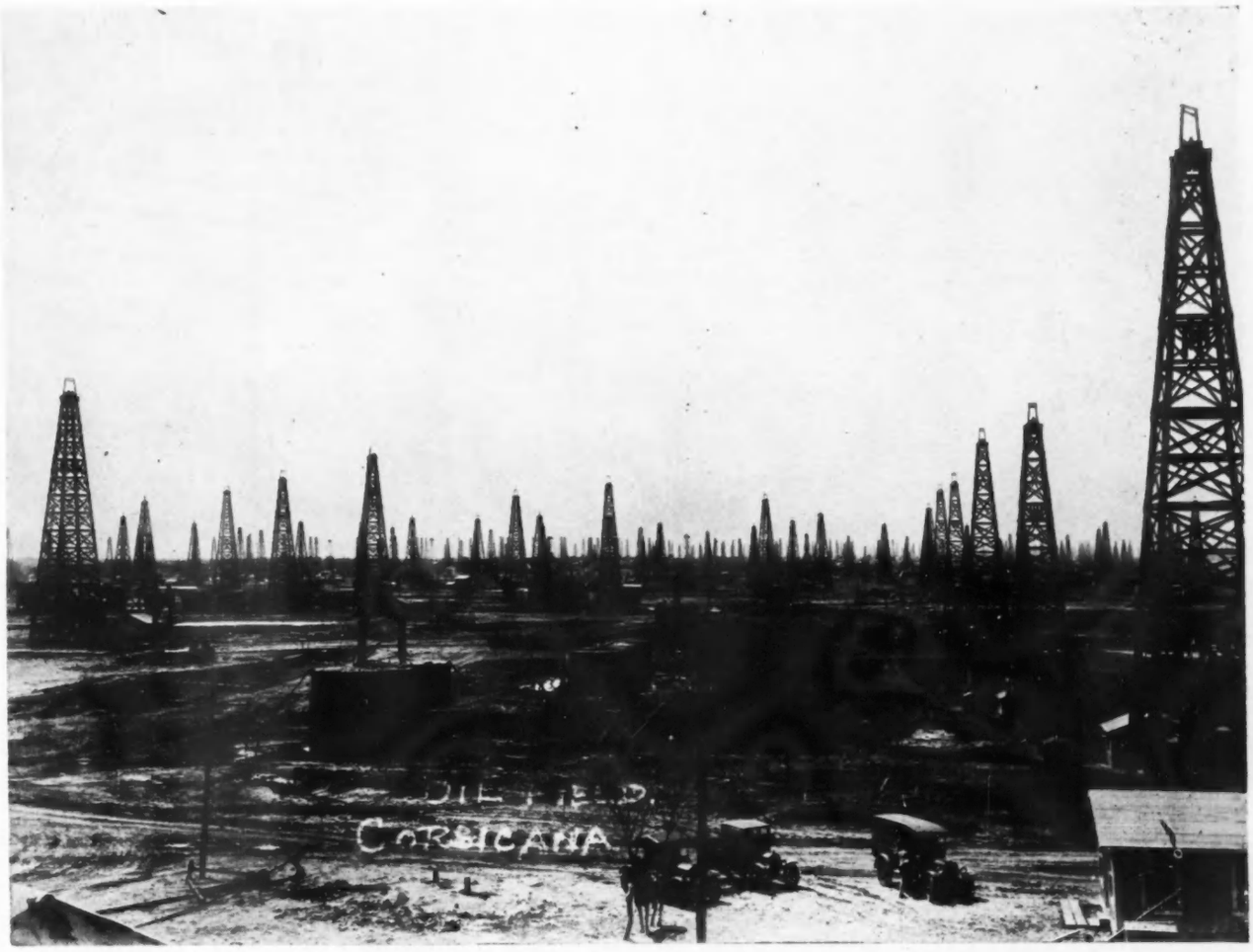
And Alexander Bell, inventor of the telephone, was predicting a dark future for the machinery of the nation unless it began the development of industrial alcohol plants, saying, in a communication to the National Geographic, that he was alarmed at the prospective shortage of oil.

How Much Oil to Be Needed?

Wild rumors were current as to the amount of oil the government would need, one report being published that the Navy was ready to place an order for 50 million barrels. The order turned out to be for only 3,000,000 barrels, but coming at a time when there was a general price



Augusta, Kansas, discovered in 1914, but developed on what was, in those days, an unusually wide spacing. The first was training ground for many operators who later made history—and fortunes—in Texas and on the Gulf Coast. Producing wells and their pumping equipment were allowed barely standing room and cultivation extended right up to the sills, operations being carried on without firewalls or other farm or well protection against fire or well damage.



Corsicana, cluttered with wooden derricks, saw the rotary make good, and served as initiation and training ground for many who later were to make good in the spread and development of Texas' rapidly expanding oil industry. The lease tanks, with central gas vent, served to take production directly from the wells and such gas as was produced was released to the air without flares or elevated stacks.

increase shaping up, a controversy arose as to price. The oil was delivered and the price fixed later by a commission, thus giving rise to editorials thanking God for a government which could seize, but didn't, at its own price, an important commodity.

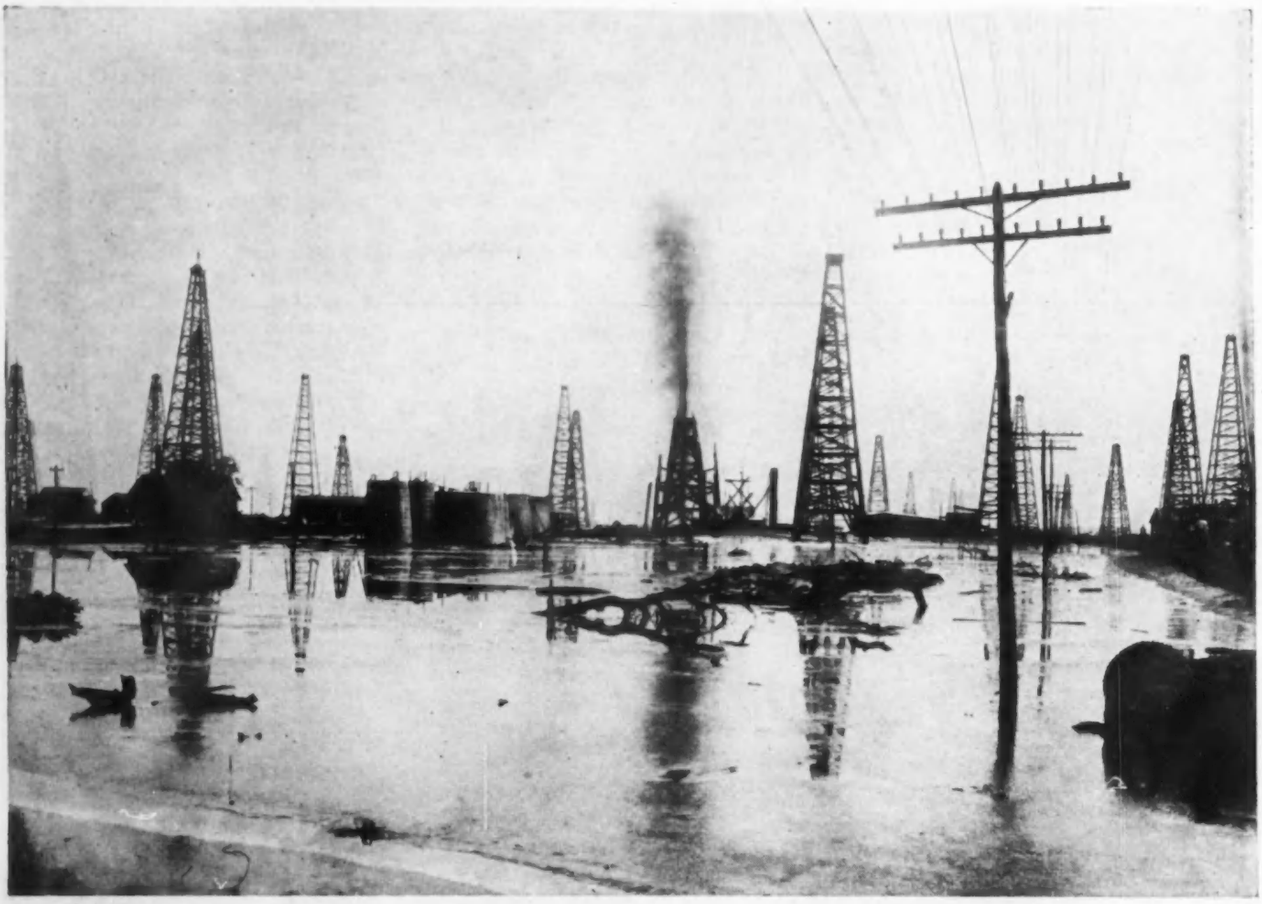
At the same time the attitude of the government, as reflected in the action of Secretary of Navy Josephus Daniels, in refusing to allow drilling on certain important California Naval reserves, which he wished to keep till an emergency arose, brought into the limelight his young assistant Secretary of Navy, Franklin D. Roosevelt. Roosevelt led the fight to withdraw the reserves, the fight coming to a head immediately before the declaration of war.

As though a dearth of worthwhile discoveries, in the face of a tremendous increase in demand, were not enough, the industry in the closing months of the year had to deal with a strike fomented by the Industrial Workers of the World (the Communists of 25 years ago) and sponsored by the American Federation of Labor. When the strike was practically over, following the assignment of troops to fields in the Texas Gulf Coast and Louisiana, the only areas where the strike was really bad, Vernon Z. Reed, a federal mediator, arrived and rather hurriedly left, leaving behind him what he called a settlement of a strike which oil operators said had already died a natural death, leaving the problem with somewhat of a new official status to be cleared up in 1918.

Pipe Shortage Then, Too!

Still another factor which conspired to hold back production was a pipe shortage. The oil papers of the summer and fall of 1917 carried frequent references to the pipe and steel shortage—while prices of pipe skyrocketed. Later priorities on materials used by the oil industry, plus the intensely increased efforts of the pipe mills, solved the problem—and before the year was out production was mounting above consumption.

The political front was fairly quiet, insofar as oil was concerned. Nineteen seventeen was the year when the Texas pipe-line law was passed, making pipe lines common carriers, and giving them the right of eminent domain, with W. B. Wortham as pipe line commissioner. California passed a law requiring the setting of casing to shut off water sands, and stood by her guns in the face of the pipe shortage. The Federal Congress enacted a law covering fuel and pipe lines as a part of a general control of industry, but the provisions were not regarded as difficult. President Woodrow Wilson showed an indication of desiring some form of oil control, but the quick response of the industry to the demands of the year, plus a general disposition of Congress not to interfere, if possible. with the conduct of business, topped by the efficient work of the Petro-



Here is a wild one of 1918—Simms-Sinclair Sweet Sixteen, at Goose Creek, Texas. It blew out and for days sprayed the countryside with oil, mud and water. Finally by heroic efforts, a crew led by J. S. Abercrombie, then a wild-well fighting expert who was superintendent for two oil companies, the Sweet Sixteen was closed in, making 5,000 barrels per day of clean oil. Abercrombie is now a partner in the firm of Harrison & Abercrombie, owners, among other properties, of the famous Old Ocean oil field.

leum War Service Board, left the industry with a minimum of control. And the succeeding months were to prove the wisdom of the plan.

The year opened with prices low—but closed with the general effect of the war being felt by oil as well as other commodity prices. Mid-Continent crude opened at $.80 to $1.75 per barrel depending on its grade and location, and closed at $1.20 to $2.15. Pennsylvania crude opened at $2.85 and closed the vear at $3.75, a heavy demand for lube having been encountered. California crude opened at $.73 to $1.07 and closed at $.98 to $1.32.

Tremendous increases in demand brought about by the war resulted in heavy reductions in stocks. At the beginning of the year total stocks amounted to 179,372.000 barrels (203 days' supply) and at the close of the year stocks were down to 159,-452,000 barrels (154 days' supply).

Since proration was unknown and a well was produced to its fullest possibilities without regard to the effect of such practices on the ultimate production of the well (such effect was then unknown), any increase in production had to be brought about by d illing and the discovery of new fields.

The Towanda Pool

Greatest of these in 1917 was the Towanda field—which also was the greatest field Kansas has ever known from the standpoint of initial production.

In 1916 a group of sportsmen met at a sports event in El Dorado, Kansas. Out of the meeting grew the organization of the Trapshooters Oil Company to drill on some acreage in what later became the Towanda field. The first well was good for a few hundred barrels of high-gravity oil. Before the second well could be brought in by Trapshooters, The Carter Oil Company, then headed by J. Edgar Pew, vice president, now vice president of Sun Oil Company, and known as the dean of oil producers, hit the sand with a 14,000-barrel well. Big wells followed in quick succession. A story has it that the biggest of all Towanda wells was given its location by a mule skinner who accidentally knocked the location stake down, and moved it some distance, the mule skinner location turning out to be the prize well in a field where 10,000-barrel wells were common, while a well drilled at the location from which the marker was moved, proved to be good for only a few hundred barrels! The oil flowed into an open pit and then into earthen storage. The operators were getting $2.00 per barrel for the oil.

And Sweet Eleven

Coming later in the same year was the Simms-Sinclair famous Sweet 11. This well, in the Goose Creek field, drilled to between 3000-3100 feet (operators in those days jealously guarded the news of exact tops of new sands, thereby promoting much water troubles for themselves), came in making 3000 barrels—cut its connections and ran wild, producing at the conservatively estimated rate of 35,000 barrels per day before it sanded up. Workers, sloshing in oil

to their knees, fought to get control, but nature did the job for them.

But for days to come women in the town of Pelly, a mile or more away, were bewailing the fate of the wash which was on the line the day the well went wild, and the white shell roads leading north from the field had an oiled surface for the first time in their history.

A year later Sweet 16 repeated this act at a slightly lower depth.

The Biggest of Them All

But lest it be assumed that Kansas or Texas could lay credit to the world's biggest well, the GULF COAST OIL NEWS, a few weeks later, printed a picture of the Aguila's No. 4 Petroleo del Llano, in Mexico, which was "seeping" 35,000 barrels a day, after having been covered by a literal mountain of earth following ignition of the well, either accidentally, or purposely by saboteurs. The well had been good for 100,000 barrels a day, and had produced up to the fall of 1917 more than 100,000,000 barrels—making it an all-time record well to date.

It was late in 1917 that a well was brought in on the McClesky at Ranger by Texas Pacific Coal & Oil Company which had more influence on Texas oil operations than any well up to that date, excepting the Lucas gusher at Spindletop. For many months scout reports had showed "T P Coal and Oil" carrying on an intensive wildcatting campaign in three West Texas counties—but in December the cable-tool bit of McClesky 1 topped the sand and started one of the most hectic booms the country had ever known.

Many Companies Organized

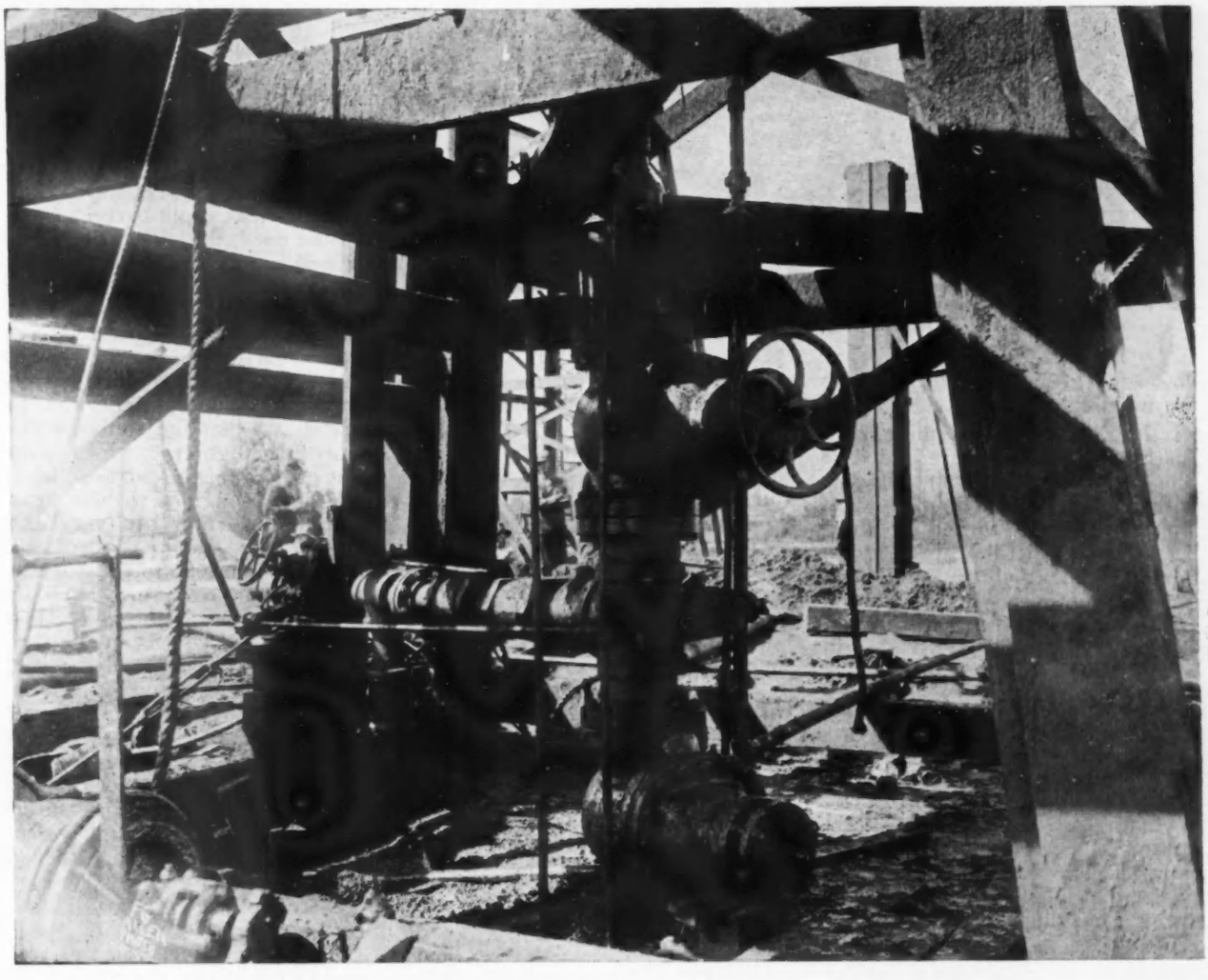
Before the year closed the effect of the intensive drilling campaign throughout the United States was showing up in the addition of new fields. New companies sprang into being. In May alone, companies organized with a total capital stock of over $70,000,000 were incorporated, many of them to drill wildcat locations, many of them, unfortunately, only to sell stock.

By March it was reported that there were 1350 wildcat wells drilling in the Mid-Continent alone.

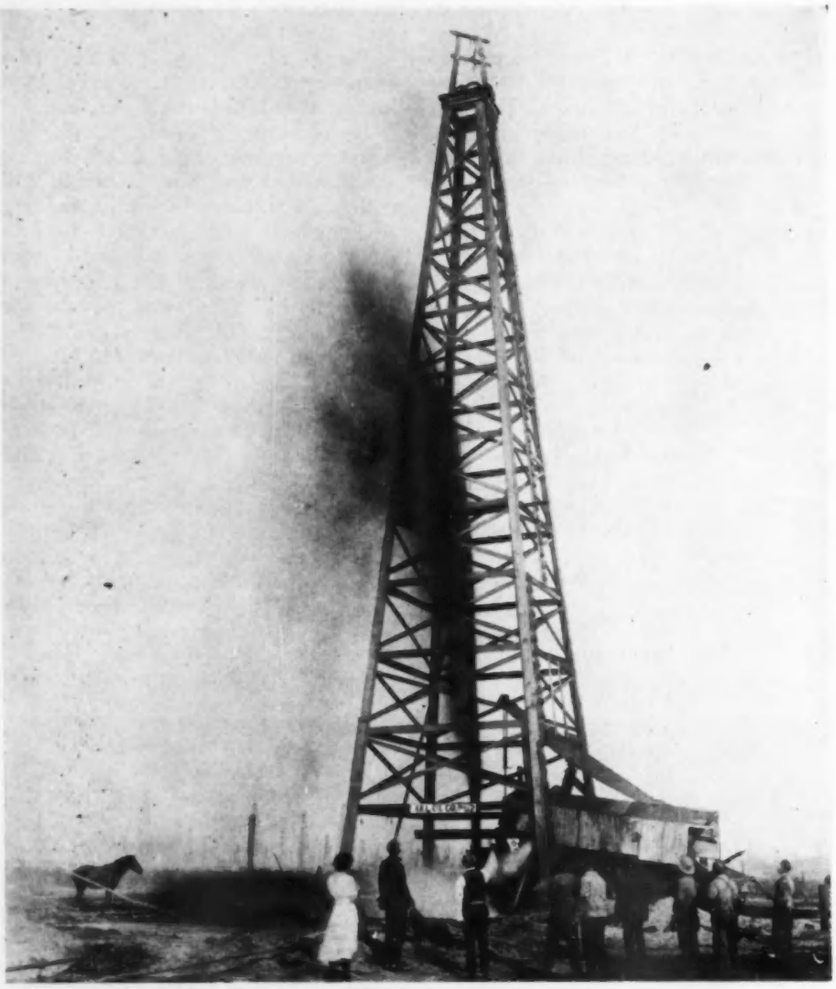
In addition to Towanda, Potwin, Kansas, became a field. In Oklahoma, a well which the Mid-Continent Petroleum Company had been drilling so long near Billings that it had almost been forgotten (drilled on geology, too), came in. Oil paper comments noted that it was a boost for the geological fraternity, with the intimation that the fraternity needed a boost! The same week the deepest well in Oklahoma was completed—Fortuna Oil Company's well in Section 5-22-3, a 3897-foot well with 200 feet of oil standing in the hole. However, California, the same month, claimed a record in setting 3722 feet of 10-inch casing in Union Oil Company's Bastanchurry 5.

League City, Texas, reported a showing of oil at a point near which, 20 years later, a good field is located.

Alabama had a boom, near Cor-



This is the equipment installed on Sweet Sixteen when it was controlled (see page 58).



Landowners, neighbors, the drilling crew and even faithful old Dobbin gather to watch as I.X.L. Oil Company's Morgan 2 comes in a gusher on October 24, 1919, northwest of the earlier developed section of the Burkburnett field.

dova—but a fair gas well later was the sum total of success.

In Louisiana, Plain Dealing, New Iberia and Houma were added to the production column, Houma with a big gas well known for a long time as the "turpentine well" because the distillate bled from the line had attributes similar to turpentine. Pine Island, home of erratic wells, was opened by Ellen Oil Company and Black Bayou in Louisiana was another.

In Wyoming the Lance Creek and Maverick Springs fields saw their first production.

The Texas Gulf Coast saw a producer drilled by Tyndall-Wyoming Oil Company, at West Columbia, where The Texas Company had spent hundreds of thousands of dollars trying to get through heaving shale.

In California Standard Oil of California got a 350-barrel initial well on the Anita Baldwin Ranch.

But the real prize of the year goes to the U. S. Bureau of Mines, because the bureau really was busy with recommendations to drill on areas where oil fields later were found. To name some:

U. S. G. S. Really Busy

A young man with the United States Geological Survey by the name of Oliver B. Hopkins, who later traveled afoot over much of South America, and is now a director of Imperial Oil Company, wrote in an official bulletin that Mississippi drilling probably would have more chance of success if locations were made further east of a well which had just been abandoned not far from Vicksburg. Eighteen years later the Tinsley field was located in the area suggested by Hopkins.

A. J. Collier of the U. S. G. S. staff made a report recommending exploration of the Bowdoin Dome in Montana. E. E. Fath also of the staff, in a bulletin thought Bristow, Oklahoma, a likely place.

Methods of 1917

Most of the drilling in the U. S. A. was done with cable tools in 1917 and operators of today will be surprised to know that the Peoples Natural Gas Company in a 7350-foot well near McDonald, Pennsylvania, welded nearly 7000 feet of casing!

California was requiring that water strings be set and cemented. In the rest of the country such practice was at that time regarded as too expensive for practical economy. Wells everywhere in flush territory were drilled more closely than was the custom later. In the Gulf Coast derricks were spaced a few feet apart, and it was a regular practice to have more than one well to the acre.

When a wildcat well came in it was the signal for a wild scramble for acreage and a rush down to the sand. A producer "protected" his sand by refusing definite information on the depth of the sand top, with the result that sands were ruined and wells killed by premature water encroachment.

Completion Practices

Completion practices were crude. In many areas a gun-barrel separator was used, the oil flowing from the well into a wooden box with a pipe extending into the air to bleed off the gas if there was much of it.

Great amounts of oil were stored in open earthen tanks. In Mexico one open lake had 3 million barrels of crude in it so long under the hot tropical sun that the sun heat distilled off the lighter fractions to the point where the oil in the "lake" could not be pumped without heating, and the editor of The Gulf Coast Oil News in an editorial estimated from 600,000 to 800,000 barrels of crude were lost annually through earthern storage—a loss rate of 8 to 10 percent on the Gulf Coast alone!

Concrete storage was given an impetus by the shortage of steel occasioned by the war, and a great deal of concrete storage was built—some of it still in use although earthquake experiences in California, and settling of tanks elsewhere, plus the knowledge gained in gas-tight steel tanks, make concrete storage something to reminisce about only.

California, unquestionably, was ahead of the rest of the country on methods, with the Mid-Continent

second, and the Gulf Coast far behind. In 1917 a young Californian, John R. Suman, became chief engineer of Rio Bravo Oil Company in Houston, his job including geological work, bridge building, drilling and production. In the first of a series of articles in GULF COAST OIL NEWS he tactfully called attention to numerous wasteful tactics on the Gulf Coast, pointing out improved methods in use elsewhere. These articles were later embodied into the first technical book dealing with drilling and production in a practical way, and the influence of this man in his writings, his book and his practices had ultimately a great effect on Texas operations. He is now vice president in charge of production for Humble Oil & Refining Company, and president of the American Institute of Mining and Metallurgical Engineers, and only last month was awarded the distinguished service scroll, by the Texas Mid-Continent Oil & Gas Association.

About the same time a young man named Max Ball, on the staff of the U. S. Bureau of Mines, was preaching, through bulletins and speeches, about the waste of oil and gas. By the first of the coming year, he prophesied there would be 5 million automobiles and urged that every step be taken to study and avoid the waste of oil and the waste of gas used in lifting it. He later became president of the American Association of Petroleum Geologists, one of the country's leading petroleum scientists, and is more recently known as the author of "This Fascinating Oil Business." At present he is actively engaged in the development of oil from tar sands in Alberta, Canada.

It was in 1916 that the government started its experiments in the plant of Tide Water Oil Company at Bayonne, which led to "New Navy Gasoline" specifications.

Drilling in Water

Drilling in the protected waters of Caddo Lake, and on the Pacific at seaside was an accomplished feat, but coastal operators on Tabbs Bay on the Texas Gulf Coast began drilling in 12 feet of water this year. Strangely enough, though little precaution could be taken against oil pollution, and the wells were high pressure wells, friends of the writer used to catch large red fish from drilling rigs in Tabbs Bay while the area was under development and later.

Water pollution had long been a problem in farming areas, and in some fields salt-water-disposal associations had been formed by the operators. But generally speaking, oil from a wild well was regarded as an act of God.

The Providential aspect of this situation, however, received quite a blow from local sportsmen when one coastal well blew out, and a stiff north wind blew the oil into a bay which had been a favorite duck-hunting spot. The water was covered with oil, and large numbers of ducks, not realizing what the new covering of the bay meant, lighted on it, and couldn't fly. They were killed in large quantities with clubs, but the howl which went up from sportsmen was the forerunner of a movement to protect against pollution.

Drilling Records

Drilling records were being made —not only was the deepest well in the world, at that time (only to lose the title a short time later) being drilled in Pennsylvania, but W. D. Head Company was proudly pointing to a record in California where the crew drilled 500 feet per day for two successive days, in the rush to get down to dollar oil.

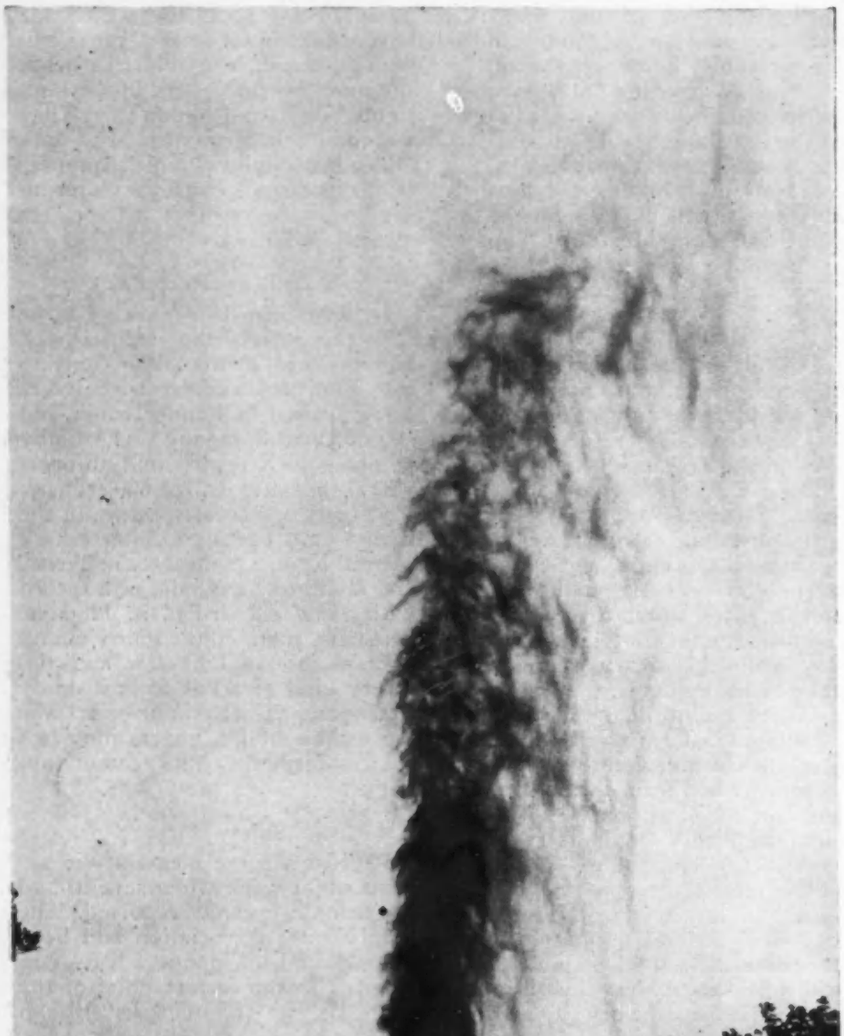
Fred Kyle, a contractor in Texas, laid claim to some kind of a record with 2200 feet drilled in 12 days. The news justified the reproduction of a picture of the crew and rig. Every kind of a hat from a derby to a panama was in use. It was more than half a generation later that safety tin hats came into vogue.

Safety First

Accidents were common—it being a quiet week when several bad accidents were not reported. The Safety First Association had been formed, and its founders had dedicated it to the former chief of the U. S. Bureau of Mines, Dr. Joseph

Photographic print by Lloyd M. Long

Burkburnett about 8 months after discovery. Derricks crowd dwellings and their necessary accessory structures with a hodgepodge of pits, huts, tanks and pipes until orderly development becomes a nightmare. Burkburnett was responsible for much pipe-line improvement, with the field being thoroughly covered with a network which enabled production to be handled without any of the usual teaming and trucking.



The Golden Lane, Mexico, where wells were really big—a mere spout of oil over the crown block was nothing. Pits, dikes and firewalls all proved inadequate to control the flood from this well. Such unbridled flow hastened the break-through of the underlying salt water and undoubtedly ruined many prolific fields long before their quotas of recoverable oil could be made.

A. Holmes, father of Joe Holmes now prominently identified with the oil business in Venezuela. Oil companies were just beginning to realize that there was more to safety than merely parroting "safety first."

Among the suggestions which came from the U. S. Bureau of Mines was one having to do with the use of mud to shut off water. Quite a lengthy bulletin was issued, but the use of cement later became prevalent.

The year was not without its amusing incidents in the field of so-called science. Many wells were being drilled on advice of "doodle bugs," and "creekology" was just beginning to be heard in Oklahoma. An Irishman in New York proposed that an 18-inch pipe line be laid from New York to Ireland. He figured a cost of $50,000,000 for the line and a transportation cost of 50 cents per 1000 gallons. His plans omitted any pumping stations on the way over!

The idea should not be conveyed that foreign operations were of no consequence 25 years ago. Many of the world's great producing areas had been discovered and many were being studied in 1916.

Mexico was in her golden period. True, during the year Carranza, always anti-American and anti-foreign, imposed what purported to be a 10 percent export tax, but by reason of the valuation imposed by the Mexican government, the tax actually became a 20 percent tax, the occasion of notes from the American government to Mexico, and the beginning of a governmental program in Mexico which prostrated the oil business there, and came near bankrupting the government there lately. But those were the days of wells that came in flowing 100,000 barrels daily; of individual wells that ultimately produced 100,000,000 barrels, an output so far achieved by whole fields in less than 50 instances in the United States.

In 1916 Pan American Petroleum Company's Cerro Azul 4 celebrated its first anniversary by making 30,000 barrels a day. It had come in for 300,000 barrels a day, so the records read—but one wonders! However, a year later its pressure had dropped from 1135 to 1035.

Operators at Topila were having a little trouble with a broken valve, and the reports said that the well was leaking 15,000 barrels a day.

There is little wonder then, that the Mexican fields were considered inexhaustible by many, and that a Mexican periodical devoted to minerals science and boosting of things Mexican, should have estimated that the reserves in the Tampico area would amount to 14 billion barrels! Mexico that year produced for market, or rather moved to market, 40,546,000 barrels, and now with the Tampico area a matter of history, insofar as the then known producing fields are concerned, all of Mexico has produced through 1940 only 1,986,789,000 barrels—a far cry from 14 billion.

When the Fish Ruined the Water

It was a great year for the statisticians, the prognosticators, the drillers, bandits and transportation people, but to the wives of the foreign colony, 1917 will be remembered as the year the fish clogged the water system and played hob with the water supply.

Russia that year sent a high official of Nobel Brothers to the U. S. A. to get American equipment. He complained of two things — the cost, and the lack of knowledge of Russian drillers of American equipment. [*Continued on page 139*]

Well Drilling Methods

Fundamentally They Have Not Been Changed, Merely Refined

By JOHN J. CONRY

EVEN a casual backward glance over the past 25 years in oil-well drilling recalls two conflicting situations. One is the striking contributions of the scientist and the engineer to remarkable improvements in drilling equipment and methods. The other is the unmistakable fact that fundamentally methods have not been changed, merely refined.

The cable-tool rig of today is at its core exactly what it was several centuries back when the Chinese learned how to set up a spring pole and use jumping men for power in order to get a hole punched in the crust of the earth. Likewise the rotary rig with its efficiencies is essentially what it was when men or animals were used to twist an enlarged auger and thus dig a hole.

It is significant that most of the refinement in drilling equipment has come in the last quarter-century. This has been so momentous that a man with 40 years of its benefits in his experience could well look upon it as a finished job. But the scientists are still busy in their laboratories and the engineers are still out in the fields. Instead of a finished job, the past quarter-century may well be only the beginning.

The cable tool method of punching a hole into the earth's surface for water, oil or gas, is almost as old as man's ingenuity. The ancient Chinese used it in drilling for brine, centuries before the Drake well at Titusville, Pennsylvania. A bamboo spring pole imparted the churning impulse to the bit — men furnished the power. Chinese coolies ran in single file to a point of vantage from which they jumped to a platform on the spring pole, thus sending the bit pounding into the earth to great depths. They say one can find this crude method, with few refinements, still in use in isolated portions of China.

The newer rotary method of

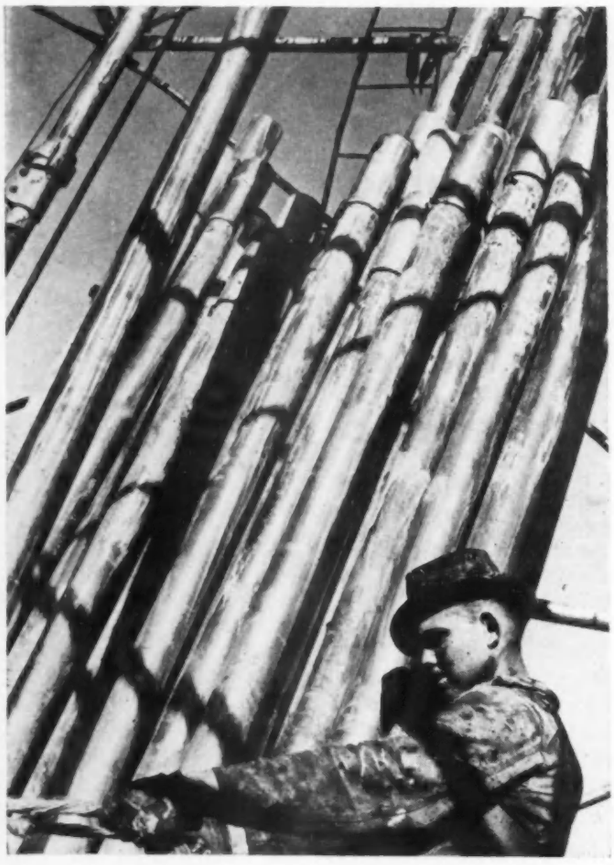
ONE of the men who had opportunity of observing the progress in drilling practices and equipment over the last 25 years is John J. Conry, who retired May 1, 1941, as president of The Carter Oil Company. His retirement ended 40 years of work in oil fields the world over. As his recording of this experience in the accompanying article sets forth, it was in foreign fields that many of the refinements and improvements in drilling equipment were introduced.

His first experience in the oil industry was with the Buckeye Pipe Line Company in Ohio, his home state, March 1, 1901. After three years as gauger, telegrapher and other work, he moved west with the industry to Independence Kansas, with Prairie Oil & Gas Company. Here he gained experience in drilling and production in the shallow fields of southeastern Kansas and northeastern Oklahoma.

Then came six years in foreign service with Romano-Americana Oil Company in Roumania, beginning in 1910. In 1916 he returned to the United States as assistant production superintendent for The Carter Oil Company, with which he spent the remainder of his business career.

He became production manager in 1918 and was in charge of the company's activities in such fields as Eldorado, Hewitt, Burbank and the Greater Seminole area. His foreign experience served excellent purpose when deeper drilling came into the Mid-Continent with the development of the Wilcox sand at Tonkawa. He introduced seamless casing, a product already widely used in foreign fields. He was active in the campaign which resulted in the standardization of oil-field equipment.

He was elected a director of the company in 1928, vice president in 1935, president in 1938.



—Robert Yarnall Richie Photo.

An outstanding accomplishment of the past 20 years has been the improvement in quality of drill pipe, which has made it possible to drill the advanced depths common today.

drilling is a product of recent years, possibly having its inception in 1821—some 38 years before the Drake well pioneered a new industry. It was reported in that year that a Frenchman, P. Phanor Prudhomme by name, employed the rotary principle without circulation, along with percussion methods, in an attempt to drill a water well at Bermuda, Natchitoches Parish, Louisiana.

Prudhomme's crude tools were all hand-forged on location by old Solomon, a six-foot slave skilled in the smithy's art. Fifteen husky negro slaves were his power plant.

The Prudhomme No. 1 was abandoned at 400 feet when impenetrable rock was encountered, but those first rotary tools have been preserved. The drill stem and bits are now on display in Natchitoches and strange to say, they are not so different in principle from some of the tools to be seen around a modern rotary rig.

The log of this early well has also been preserved, and in it in several places, is this phrase, "encountered damp." Damp is the French word for gas.

Historians unanimously agree that the first outstanding application of the hydraulic rotary principle to the drilling of an oil well was by Captain J. F. Lucas in the Spindle Top field near Beaumont, Texas, in 1901—some 80 years after Prudhomme's venture, and several years after the discovery of the Corsicana field by a rotary test seeking water.

The outfit used by Captain Lucas was light, and, as measured by present-day standards very crude and the fact that he was able to finish the well with it at all marks his work as a remarkable engineering feat. His tools were fashioned in a machine shop in Dallas, Texas, and their success opened a new epoch in deep drilling and made possible the development of the deep Gulf Coastal fields; the drilling of wells, as deep as 15,000 feet in California, and the development of fields in many foreign countries. The continuous development of and improvement in rotary drilling methods and equipment have resulted in wide use of this system.

While the underlying principle of both the cable and rotary methods of drilling have remained fundamentally unchanged, there is not a piece of equipment or a procedure used in either process which has not been refined and improved during the past 25 years.

Consider the derrick for example, a piece of equipment used in both methods. The story of the derrick is almost a story of the industry itself. It has been the symbol of petroleum since the drilling of the Drake well and perhaps no other single apparatus has been depended upon to perform so many different difficult tasks.

The early derricks of course were all of wood construction, this being the most common and cheapest material available. The type and size of these varied widely, depending upon the individual idea and requirements of the particular operator. This type of derrick was used almost entirely until late in the 1890's when the manufacturers of steel towers and steel equipment became interested in the possible field for steel in the construction of drilling and pumping derricks.

The first steel derrick was made possible by a simplified connection and was built at Mannington, West Virginia. About 1903 steel derricks for pumping wells came into use in some areas. One of the first all-steel drilling rigs was built as early as 1907. These first steel derricks, while apparently successful enough to encourage future development were evidently to be improved upon since it was some years later before a definite trend toward steel and combination wood and steel derricks made itself felt in the industry.

As a matter of fact, steel derricks for drilling purposes were accepted and in common usage in foreign fields before they became a familiar sight in this country. The first steel drilling derrick built was immediately shipped to Roumania.

With the advent and more common use of the rotary method, a type of derrick was developed which is commonly called a combi-

He Bet $6,800.00 on his own NOSE

JOHN'S NOSE is every bit as good as the next fellow's. He can tell beer from sour milk at the first quick whiff, knows when spring is in the air, and can't resist the call of hunting season when his nose picks up the crisp, faint dried leaf aromas of fall with a touch of wood smoke in the air.

But John's nose was made for only certain kinds of analysis work—it is not a complete laboratory, although he has considered it an infallible core analysis laboratory for lo these many years. On his last well his nose threw him for this $6,800 loss when just the other day he looked at and smelled a richly saturated core and instantly decided with 28 feet of this sand he was taking no risk at all in setting pipe at 4,780 . . . and he did. Testing proved the sand so tight he could never make a commercial well.

Yes, he pulled some pipe, but $3,800 worth of new pipe that he can't salvage remains in the hole, not to mention the $3,000 he spent swabbing and working with his well, trying to make that 28 feet of "the richest saturation I ever saw" produce oil.

Saving pipe and expenses is only one application of Core Laboratories service. Most operators find they can complete better wells than ever before when they have an EXACT picture of bottom-hole conditions with reference to the pay horizon, saturation, porosity, gas content, connate water, contacts of gas-oil and water-oil, shale breaks and other factors and tell an operator how to complete his well for the highest potential production. Write, wire or 'phone nearest office for complete information.

Send for your copy *Bulletin* "A," which gives the interesting story of our portable laboratories and services available throughout the United States.

CORE Laboratories, Inc.

Complete Laboratory Analysis at the Well

GENERAL OFFICES - SANTA FE BLDG., DALLAS

★ ***Base Points Located in Following Cities:***

TEXAS: HOUSTON, CORPUS CHRISTI, WICHITA FALLS • LOUISIANA: COTTON VALLEY, LAFAYETTE • OKLAHOMA: OKLAHOMA CITY
ILLINOIS: CENTRALIA, CARMI • CALIFORNIA: BAKERSFIELD, LOS ANGELES

nation or turnbuckle derrick and which employs wooden legs with steel girts and braces. This type was a considerable improvement over the old all-wood derrick inasmuch as the wood legs provided an elasticity which was supposed to be necessary during the drilling operation, and at the same time the steel girts and braces tied in the wood members in a very satisfactory manner. The tubular and angle iron derrick for both rotary and cable tools was next developed. The old combination wood and steel derricks has long since passed out of usage because of its low salvage value and limited durability as compared with steel, and the angle iron derrick is currently most widely used.

The first steel derricks were small light structures a little more than 60 feet high, but they performed the job assigned to them with some limitations. With the increased drilling depths and tremendous increase in lifting load requirements the steel derrick has developed into a structure which in some cases, is nearly 200 feet high having a safe lifting capacity of over 1,000,000 pounds. Recently the use of steel and advanced welding technique have made possible portable steel derricks or masts ranging in heights up to 129 feet which will develop sufficient capacity to withstand all the loads of any except the most unusual drilling operations. The idea of portability has inspired the manufacturer and the operator to obtain maximum lifting capacities with minimum weight. Hence the use of high-tensile alloy steel in the derrick sections as used for aeroplane design is being applied to the oilfield derrick.

These are long strides from hewing timbers on the location to rig up for spudding in, to derricks of today equipped with steel wire lines.

An interesting volume could be written on the development of drilling lines. The transition from the old 2½-inch manila rope to stronger steel wire lines of smaller diameter was probably the most important improvement.

This, too, was a change bitterly fought by the old school which contended that the manila line, because of its greater elasticity, was to be preferred. It was argued that with proper adjustment of the temper screw and motion of the walking beam a much harder blow could be struck with the tools suspended on a hemp cable than is possible with steel because of the greater elasticity of the hemp cable, which naturally increases with the length of the stroke.

Comparable elasticity in steel lines was not found until depths of 1000 feet or more were reached so the steel line was first used only in deeper wells.

Then the practice of using a length of hemp line at the end of the steel line to give greater elasticity was tried but it was finally found that by redesigning the walking beam, a motion comparable with that supplied by hemp lines would be gained when using wire lines.

The rotary, even in the early day, was some improvement over the older cable-tool method. It was faster, under proper conditions, and since the circulating mud sealed the walls of the well, there was less trouble from caving formations. The mud was also an aid in controlling high gas pressure and preventing blowouts, and less casing was required in the rotary method, reducing this cost.

But the early-day rotary also had many overwhelming disadvantages. The initial cost of the tools was much higher, and this is probably one of the principal reasons why the rotary method has not completely replaced cable tools today. Until bits, and the material which went into them were improved, the use of the rotary was limited almost entirely to drilling in soft strata. The old fishtail bit, soft as it was, made little impression in rock and dulled quickly and because of the time required to come out of the hole to change bits, and the frequency with which this had to be done, the rotary was much slower when drilling in hard formations than the cable tool method. A larger crew was required to operate the early day rotary and this increased daily labor costs. Trained rotary workers were few and hard to find. The mud which sealed off water sands, also sealed minor oil and gas pays, delaying wider use of rotary until modern methods of identifying pay horizons were developed.

These, and many other disadvantages had to be overcome by the rotary method before it could hope to compete with the cable-tool method, either from the standpoint of cost or efficiency of operation. It was slow progress. Even though the rotary was introduced in Texas at the beginning of the century, it was regarded more or less as an unstable experiment for the next 10 or 15 years—in fact, it was not until the early twenties that the method came into general usage. At first rotary gained a foothold along the Gulf Coast and in California where the soft strata were easily penetrable and was used considerably in these areas while still considered an experiment in the Mid-Continent and elsewhere. It was the custom for Mid-Continent operators to go to the Gulf Coast and to California to study its use. Then in 1922 the rotary was moved from the Southern Oklahoma fields to the upper Mid-Continent—the Tonkawa field to be exact. More years of study and experimentation followed with particular regard to drilling through hard formations and when a few years later the time came for West Coast operators to seek deeper pay in harder formations, they found the situation reversed. Mid-Continent operators had in the meantime become the leaders in rotary drilling in hard formations and the Californians found themselves looking to the Mid-Continent for experience and guidance. Since that time, its improvement and utility have increased by leaps and bounds.

Although many sources of improvement must be considered, there are several factors which have contributed tremendously to the remarkable progress and advancement of the past 25 years, not only in drilling, but also in other phases of the industry, namely: (1) The improvement of materials; (2) Standardization of equipment; (3) The practical application of scientific principles; (4) The control of drilling mud.

The improvement of materials and its place in drilling progress should not be discounted and cannot be over-emphasized because it has figured literally in every advancement which has been made. Consider, for example, the transition from the old wooden derricks to the modern steel towers of today; from hemp cordage with its myriad weaknesses to pliable, strong wire lines; from soft, cast-iron bits to the hard faced bits which are capable of penetrating the most impervious rock; from the old stove-pipe casing of early years, to today's seamless casing which has the strength to resist collapse from any pressures to be

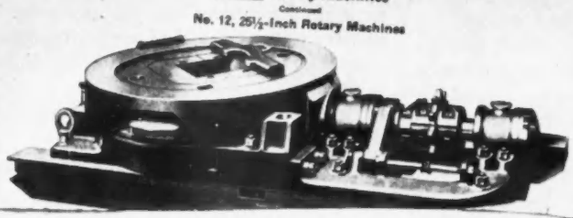
LEADERSHIP

120 THE NATIONAL SUPPLY COMPANY

IDEAL Rotary Machines

Continued

No. 12, 25½-Inch Rotary Machines



THE NATIONAL SUPPLY COMPANY 121

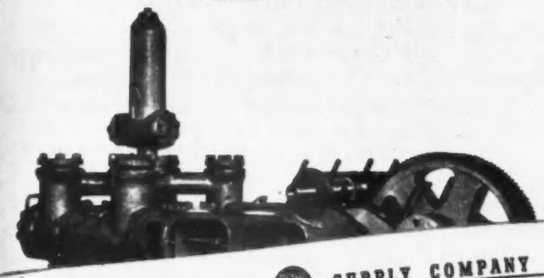
IDEAL Rotary Machines

Continued

No. HS-20½ Rotary Machines

126 THE NATIONAL SUPPLY COMPANY

Type C IDEAL Power Driven Slush Pumps



THE NATIONAL SUPPLY COMPANY 127

Type C IDEAL Power Driven Slush Pumps

Continued

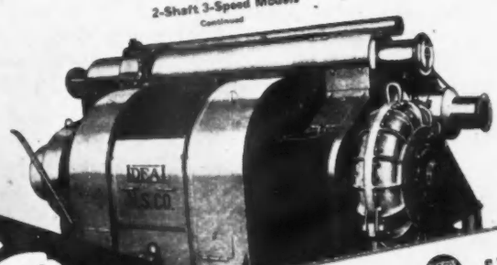
90 THE NATIONAL SUPPLY COMPANY

IDEAL Rotary Draw Works

Open Type

2-Shaft 3-Speed Models

Continued



NOW

NATIONAL SUPP

IDEAL Swivels

Types F, D, E and M

N.S.CO.

REGISTERED TRADE MARK

NO. 50

The National Supply Company

A quarter of a century later the listing of major items of Rotary Machinery and Equipment alone consumed 80 7¾" x 10⅝" pages in National's Number 50 Catalog.

THEN AND NOW

STANDARDS OF PERFORMANCE FOR ROTARY MACHINERY EMPLOYING ADVANCED ENGINEERING DESIGN AND ANTICIPATION OF THE REQUIREMENTS OF THE INDUSTRY

encountered. These clearly demonstrate the importance of the materials used in drilling practice.

It has previously been mentioned that one of the drawbacks to the rotary method in the early days was the lack of a bit which would drill through hard formations without too frequent sharpening. The development of the rock bit has overcome this difficulty and in the 25-year period just passed, great strides have been made in design and development of rotary rock bits.

In 1916 the industry was using the original "Sharp and Hughes" rock bit, embodying the basic principle of drilling through rock by rotating conical cutters with sharp chisel-like teeth, invented in 1908.

The fundamental principles set out in the orginal invention are the basis of design in nearly all present-day rock bits. The basic idea of chipping and crushing the hard materials found in the earth has been enlarged upon until drilling rates and bit footage attained with present-day rock bits are very much greater than those of bits in use a quarter of a century ago.

Subsequent developments include the reaming cone bit, with a reamer roller for sizing and reaming the hole to full diameter as the drill penetrated the rock; the cross-roller type bit which chipped and crushed the formation and used a separate reamer to maintain a full-diameter hole; improvements in types of cutters and self-cleaning cones; the short unitized bits with anti-friction bearings; and the present-day bit made with more durable bearings and scientifically designed water courses to best distribute the flushing fluid.

Tooth spacing and cutter designs have been developed to meet all drilling progress in all formations. All present types of bits will dig much faster and better in all formations than their predecessor bits, but specialized design gives an extra performance when used in the formation for which it is intended.

Present bits are far better than it was deemed possible even 10 years ago. The scope of formations being drilled with rock bits has been widened until a great many holes are being drilled from the "grass roots" to completion with rock bits alone. This practice gives the minimum of trouble and results in straight, full-size, well-conditioned holes.

Standardization Important

It is difficult to estimate to how great an extent standardization of equipment, the movement for which had its inception in 1917 or 1918 and which was finally adopted in 1927, contributed to drilling progress, and to the progress of the industry. There are many today who will tell you that standardization was the biggest single forward step ever taken by ours, or any industry, so far as that goes.

No one can gainsay the fact that standardization resulted in an unbelievably large saving to operators and to manufacturers of equipment. Today, A.P.I. standards are taken as a matter of course, but there are many still active in the industry who can recall the chaos which existed before equipment standardization and the long, hard, uphill fight which preceded its adoption.

For example, prior to the adoption of A.P.I. standards there were more than 200 different sizes of cable-tool joints in use. This number was reduced to 14 after standardization.

Before A.P.I. standardization there were more than 200 different sizes of rigs and derricks in use. This number was reduced to 15 after standardization, 8 in steel and 7 in wood. The specification stipulates the maximum unit stress permissible in strength calculations and the chemical and physical properties of the structural steel used must meet the specifications of the American Society for Testing Materials.

One of the biggest advantages of standardization was the fact that the equipment of various manufacturers was interchangeable as a result of its adoption. This meant the end of much delay, much saving in time and much more latitude for operators.

An A.P.I. group meeting on standardization held in December, 1927, in Chicago, opened a new era for oil men so far as materials were concerned. A group of old-timers looked on with disbelief while a committee took rig irons made by various manufacturers and assembled them into a perfectly functioning unit. To many of these men, interminable delays were routine, due to previous inability to interchange parts and few of them realized the vast benefit which was to accrue from this feature in ensuing years.

The transition of the oil industry from one of haphazard "hit-and-miss" methods to one of exactitude, employing every known branch of science, is another reason for its rapid progress and advancement during the past 25 years, and the application of scientific knowledge to drilling problems and procedure has resulted in numerous improvements and the accomplishment of tasks which would have been considered impossible or miraculous a few years ago. But the advent of the scientist into the industry was accomplished only by overcoming much opposition.

Pioneers in the industry had to be convinced before they were willing to accept scientific aid. They may have been a little slow in dropping the engineer, geologist, physicist, chemist into his proper niche. But when they became convinced that there might be something in these figures, curves and graphs, they sought the best which science had to offer. Science in return put a heavy shoulder to the wheel and the industry went forward with a great surge.

New, more adaptable, streamlined designed equipment resulted; more accurate and efficient methods were developed. It became possible to drill wells deeper and straighter; to control gas pressures more securely, to perfect a tighter water shut-off, to more accurately detect and determine the productivity of each pay zone encountered. Problems which had baffled the industry for years, were, through the application of scientific principles, solved in a relatively short time.

The progress of recent years has been so rapid that it would take a far-seeing man indeed to predict the progress which may ensue during the next quarter-century. Yes, the oil industry owes a deep, eternal debt of gratitude to science for new ways of finding oil; improved methods of recovering it, and greater efficiency in drilling and producing crude oil.

It was many years after the advent of the rotary before operators and pipe manufacturers learned that to have a joint as strong as the balance of the string, it was necessary to upset the ends of each length of pipe. Another improvement which strengthened the joint was in the pitch and taper design of the threads.

Among the outstanding accomplishments of the past 20 years has been the improvement in the qual-

THERE'S LIFE IN THE OLD VALVE YET

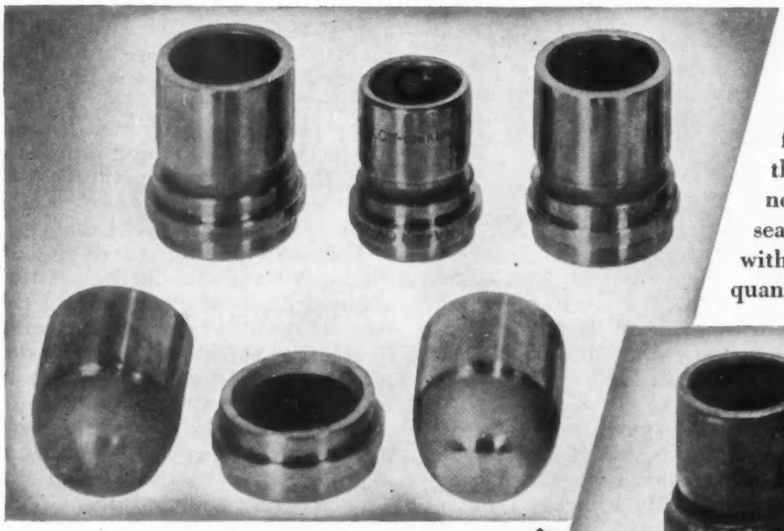
Repeated use of reclaimed drops and seats conserves strategic oil field material

During these times of national emergency it is vitally important that strategic materials be conserved. One way of accomplishing this is by reclamation and re-use of old parts. In the petroleum industry users of valves made of "K" Monel find this type of reclamation well worth while. That's because a drop and seat valve made of "K" Monel resists the corrosive attack of sour oil and brine so well. In addition, hardened to 300 Brinell, "K" Monel resists the abrasive action of rock particles and sand. After years of such use many of these valves show no evidence of corrosion. Others are so slightly corroded that they can be reconditioned and reground.

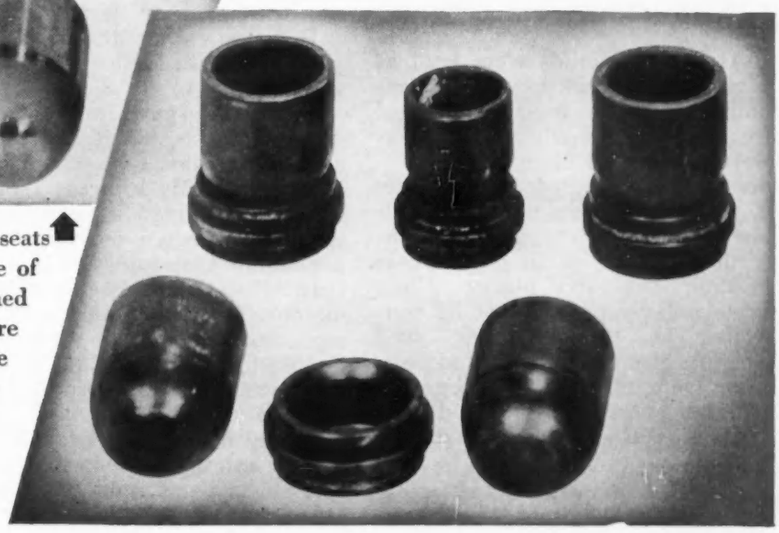
For information write for Bulletin T9—"Engineering Properties of "K" Monel." Address:

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York, N. Y.

"K" Monel is a registered trade-mark of the International Nickel Company, Inc., which is applied to a nickel alloy containing approximately two-thirds nickel and one-third copper, with a small aluminum content that permits hardening by heat treatment.



BEFORE—"K" Monel drops and seats for oil well working barrel valves, as received for reconditioning after service in one of the most corrosive areas in the mid-continent district. A number of these drops and seats have been in service over eight years without evidence of corrosion handling large quantities of sulphur, water and gas.



AFTER — The same "K" Monel drops and seats after reconditioning and regrinding. Some of the drops and seats have been reconditioned five times over a period of eight years and are still perfect. KA alloy drops and seats are made from "K" Monel and manufactured exclusively by JON R. LONG, MANUFACTURER of FORT WORTH, TEXAS.

ity of drill pipe. Less than 15 years ago one large company reported an average of one drill pipe failure for every 750 feet of hole drilled. Such failures have been reduced so that it is probable that present experience is much less than a failure per 5000 feet of hole drilled.

It is impossible in this limited space to detail the many improvements in tubular goods, but this has undoubtedly been one of the principal contributing factors to the industry's rapid progress. The outstanding accomplishment in the development of oil-country tubular goods has, of course, been the development of seamless process to cover the range of sizes and materials needed for this service. The introduction of the seamless process permitted increasing yield strengths of oil-country goods over the old lap-weld and butt-weld pipe. Joint strengths likewise have been increased so that at this time it is possible to obtain joints of equal strength to that of the pipe under tension loads.

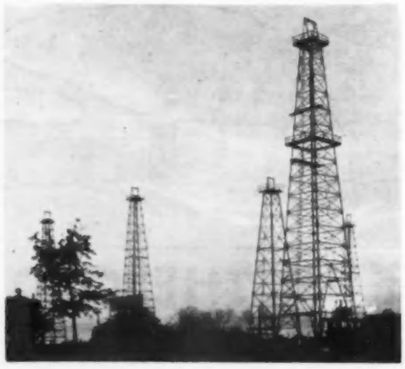
Even the mud used as a circulating medium for rotary drilling has been the object of much research, study and improvement.

It was the original intention to use water as a circulating medium, its purpose being to lubricate the bit and carry away the cutting as the hole was drilled. Naturally this water leached clay from the cuttings and from the well walls, forming a slurry; thus the birth of the so-called drilling mud.

Experience taught drillers that this mud might be used for other equally important purposes than those above mentioned. It sealed the walls of the well preventing cave-ins and its weight was found to be an ideal factor in controlling high gas pressure and preventing blowouts.

At first the muds were kept at a very low consistency by continuously running in a stream of fresh water, but when formations were penetrated having fluids under normally high pressures, the clay solids in the mud were allowed to build up to give it a higher density and retain these fluids in their respective places. When these pressures could not be controlled by the maximum mud weight, ground barytes and iron oxide were added to give the mud a higher specific gravity and bentonite was used to insure stability.

Experience with bentonite uncovered the importance and necessity of low filtration characteristics and thin filter-cake deposition in drilling muds, to prevent shales from heaving and drill pipe from sticking. Definite ratios of colloidal gel-forming material and weighing materials had to be established, thus chemical treatment of the mud was introduced to decrease viscosity and water loss.



Robert Yarnall Richie Photo

Wooden derricks were still popular 25 years ago, although all-steel derricks were being used by some operators. Today the all-steel derrick of increased height and strength is illustrative of the great strides made in field equipment.

Today the mud engineer has at his disposal several different weight building materials, commercially available, with which he can build muds weighing up to 25 pounds per gallon. Several types of colloids are available for him to raise the viscosity and lower the water loss in fresh and saline drilling muds. He has a host of chemicals with which to control the flow and sealing properties of drilling muds to a very close degree of precision.

Safety Progress

The progress made in safety in drilling should not be overlooked. Previous to 1934 separate records on drilling were not kept, but A.P.I. figures for the last seven years speak for themselves and are significant.

In 1934 approximately 4100 workers were employed in the drilling division. One out of every 1021 was fatally injured; 1 out of every 8 sustained a disabling injury. There were 69.04 accidents per million man-hours of exposure.

In 1940 there were approximately 8400 men employed in drilling—more than twice as many as in 1934. Yet only one out of every 1695 was fatally injured and only one out of every 13 sustained a disabling injury. The accident frequency rate per million man-hours of exposure was reduced to 40.03. In other words the number of workers doubled and the accident experience was cut almost in half.

But there is evidence of progress along this line which speaks louder to the old-timers than any mere figures. It is the number of men to be found on rig floors today who have all their fingers, toes, arms, and eyes. It was unusual in the early day to go on the rig floor and find even one man who was not maimed or disfigured in some way.

Progress along many other lines could be mentioned — improved tankage for example. There is a vast difference between the early wooden and earthen storage tanks which were inefficient and wasteful and today's modern steel tanks which retain and conserve every ounce of oil withdrawn from the formation. Very little has been mentioned in this article about improved methods. The common conception of an oil well is one with oil gushing high over the derrick, but those days are gone forever. Modern methods of completion and modern equipment makes it possible to turn the first ounce recovered into the tanks and not one bit is wasted on the landscape.

Improved methods and improved equipment have resulted in steady improvements in conservation practices, made possible wider well spacing, the maintenance of reservoir pressure, etc. These improvements are not alone confined to the drilling phase of the industry. Similar progress has been made in every phase of oil finding, drilling, production and refining until today the industry operates with great economy and at an exceedingly high degree of efficiency.

This story could go on indefinitely. Volumes could be written about drilling progress during the past 25 years. The improvements in steam, electric and diesel power plants, in mud pumps, in boilers—in methods of coring, methods of completion, well-logging, in every phase of drilling could be discussed in great detail if space permitted. This progress will continue. Greater depths will be reached with faster drilling speed. There will be increased mobility and flexibility of equipment. There will be improvement in hydraulic couplings or torque converters, gasoline and diesel-electric power, hydromatic brakes, and slim-hole drilling. Efficiency will be constantly increased and relative costs will be reduced. Much improvement has been made but there is still much to be accomplished.

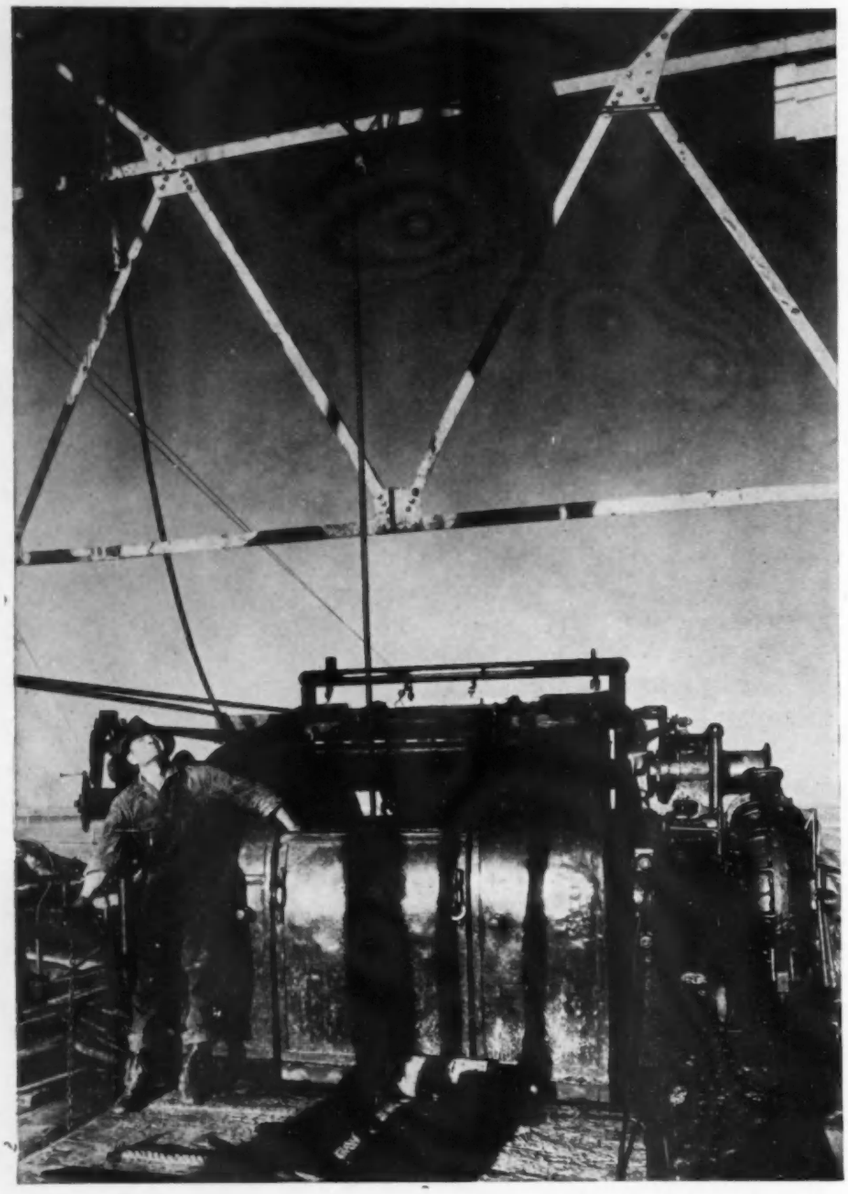
ROBERT YARNALL RICHIE PHOTO

Drilling Equipment

HAD the oil man of 25 years ago been able to look into the future and see the kind of equipment and type of service which would be offered him today in drilling and producing wells, he would have had the feeling that he was gazing into an almost unbelievable fairyland of accomplishment, convenience and safety.

If the oil man of today will look back over the past quarter of a century to what was in use 25 years ago, he will wonder who was the Aladdin who rubbed the magic lamp, and then, after retrospection, will desire to pay a genuine tribute to the group of men who, hand in hand with the oil men themselves, have made these things possible—the manufacturers of oil country equipment.

In the oil business the manufacturer of equipment holds a position of friendship and esteem with his customers, which is seldom to be found in other industries. He works with the oil man, he is cognizant of the oil man's problems, and much of the results which the oil industry has accomplished may be laid to the inventive skill of the equipment man whose ability along these lines has been equal to the progressive spirit of willingness on the part of the



—Robert Yarnall Richie Photo

The powerful, precision-built modern drawworks is also a compact and completely enclosed unit that has played an important role in the safe, economic and high-speed drilling operations of today.

oil man to try out new tools and ideas.

Deep wells generally are considered mileposts of accomplishments, showing what can be done. In this connection it is interesting to note that the deepest well in the world in 1916 was a cable-tool test drilled to 7350 feet by Peoples Natural Gas Company near McDonald, Pennsylvania. It was a five-year job, for drilling started in 1911. Today the deepest cable-tool test in the world is a 9104-foot hole near Charleston, West Virginia. The world record for deep rotary drilling 25 years ago was 5410 feet, held by Producers Oil Company with a test in the Humble field of Texas. The record for rotary drilling today belongs to Continental Oil Company, which drilled to 15,004 feet in 1938 at Wasco, California. A number of tests have been drilled to 14,000 feet, and hundreds have penetrated beyond 10,000 feet, although the first 10,000-foot hole was not completed until 1931. That production methods have kept pace with drilling progress is attested by the successful completion of a large number of wells that exceed 10,000 feet, and a number that are producing from 13,000 feet. Oil is being artificially lifted from 10,000 feet, something that could not have been done only a very few years ago. All this has meant discovery and production of large quantities of petroleum considered beyond reach a short time back, and has been made possible to a large extent by equipment advances.

To record all the various and sundry advancements that have taken place in both equipment and methods of the industry in the last quarter century would require a voluminous book, far more space than possible to allot here. So the forward steps in equipment only are to be mentioned, and these are necessarily sketchy, condensed and highlighted. Anyway, the purpose of this article is not to present historically a complete recording of such achievements, but merely to set forth enough of the accomplishments which may be attributed to equipment manufacturers to illustrate the magnitude of the part these people have played in the industry's equipment progress. It is too much to attempt to cover even this relatively small phase without realizing that somewhere along the line will be unintentional omissions of developments that have played important roles. For such omissions, the pardon of those thus slighted is humbly craved.

Economy Is Theme

Economy is the theme of modern drilling and producing technique, and if equipment had not been improved to the point that its performance record is far more efficient than that of earlier dates the substantial reductions in operating costs would have been impossible of achievement.

The lower cost of rotary drilling affords an outstanding example of the reduced operating expenses that have been achieved. The trend has been to increase the time spent on bottom actually digging hole, to dig more hole per hour, and to provide for faster dismantling, moving and erection of rigs. The spending of more time on bottom actually making new hole has been the result of improvements in the bit, drill stem, and hoisting equipment. Fewer round trips are made today, and those that are necessary have been speeded by faster hoisting speeds and improved drill pipe that permits more rapid stabbing and spinning. Meanwhile, the average drilling speed has increased many fold, because of the progress in bits, drill stems, rotary tables, and other elements influencing rotating and digging operations. The disproportionately large amount of unproductive time formerly

remembers when Oil in California was still news

OCCASIONALLY the oil industry pauses to take a quick look over its shoulder at those days familiarly known as "way back when." In doing so, it certainly must view with considerable pride and feeling of accomplishment the vast industry that has since been developed largely through individual foresight, initiative, and enterprise.

This retrospection presents a particularly interesting picture to us, one reason being because Mr. R. C. Baker, president and founder of Baker Oil Tools, Inc., himself took an active part in this development work.

Like many other well-known figures and personalities in the oil industry, Mr. Baker's early experience was gained in the field as a driller-contractor-operator, first in Los Angeles and later in the San Joaquin Valley. To supply the oil industry with many of his important inventions (the famous Baker Casing Shoe in 1907), he subsequently entered the equipment manufacturing phase of the business, starting in 1913 with a small manufacturing shop at Coalinga, Calif.

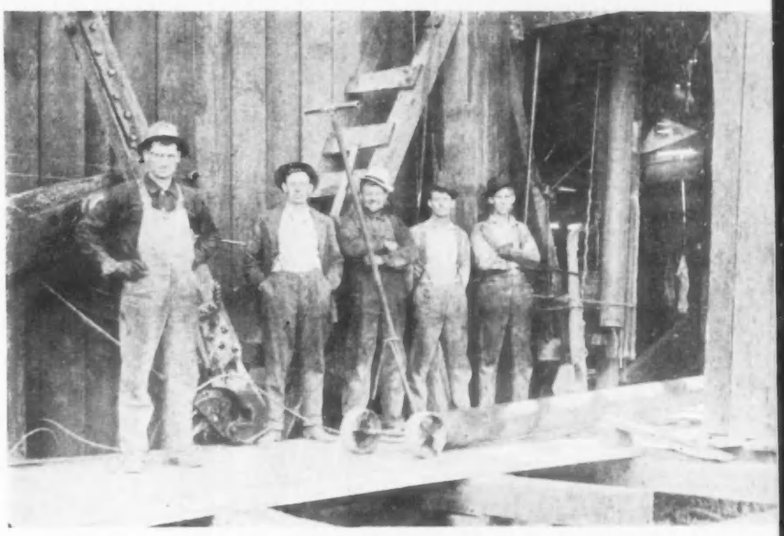
The pictures herein reproduced are scenes from these early days. They are taken from Mr. R. C. Baker's private file, and we feel are interesting for both their personal as well as historical background.

While Mr. Baker made his start, and Baker Oil Tools, Inc. also had its inception in California, activities have not been confined to this territory. Rather, tools and devices bearing the now famous Baker trade mark have, for more than thirty years, played an important part in the development of every oil-producing territory throughout the world.

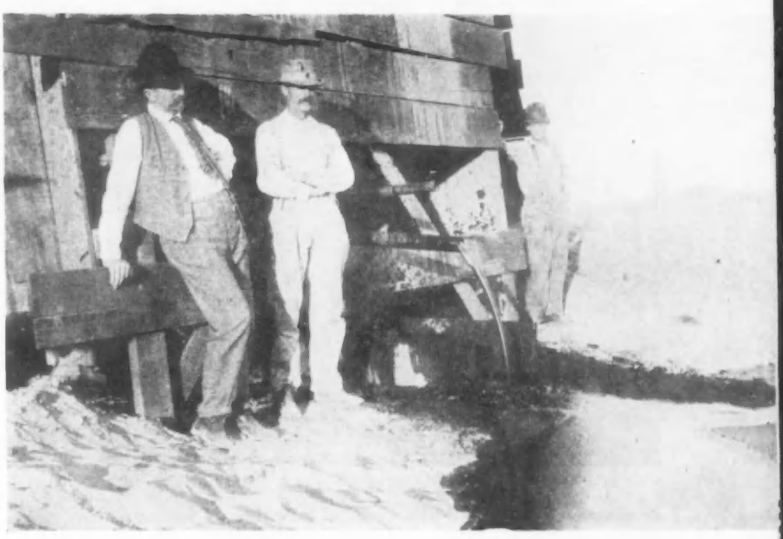
In addition to the original shop at Coalinga, California, manufacturing plants are today maintained at Los Angeles, Houston, and St. Louis, with service offices and branch warehouses located at key points in California, the Gulf Coast, Mid-Continent, Illinois, and Rocky Mountain territories.

Thus, on this occasion, Mr. R. C. Baker, the individual, looks back with pleasure... and Baker Oil Tools, Inc., the institution, looks forward with confidence.

BAKER OIL TOOLS, INC.



Coalinga Syndicate Oil Company Well No. 3A (1911). Left to right: Tom Walker, William Lair, Ross Cadwell, Bascom Pryor, Clem Ibert.



Another view of Coalinga Syndicate Oil Company Well No. 3A. Completed October 15, 1941, at depth of 2421 feet for a 200-barrel well. Left to right: R. L. Peeler, R. C. Baker, Clem Ibert.

Automobiles waiting for arrival of Los Angeles Business Men's Special—Coalinga, California, 1907.

—Robert Yarnall Richie Photo

Improved casing and methods of running it into the hole have done away with many of the difficulties experienced in the more shallow drilling of a quarter century ago.

spent in dismantling, moving and setting up the drilling rig has been shortened from days to hours. Here is found a most important factor in reduction of drilling costs. Continued advancements have been made in portability of equipment, to facilitate moving operations. The importance of increased mobility cannot be over-emphasized because of the frequent moves made by drilling rigs. Thus, non-productive time has been reduced to a minimum and productive time has been boosted to a maximum. Changes and improvements in other elements, prime movers for instance, have further lowered cost. And so it has been in the production of oil also, as shut-down time for equipment repair and well cleaning has been reduced to a minimum, through equipment advances and well studies that permit the proper selection of machinery for each individual well.

The part of the metallurgist in the development of oil-field equipment to its present high standards cannot be overemphasized, for certainly better metals and processing, together with their widespread application, have been a most important factor in the general improvement that has been attained. In practically every case the change from iron to steel and specially processed steel alloys has given better performance, both in length of service and operating efficiency. In numerous instances it has been possible to reduce the weight of various pieces of equipment, which has been especially important in the drilling branch because of the need for ease in moving from location to location. One could not be far amiss to state that the greatest of all improvement has been the result of metallurgy.

Other factors of general character that have assisted in providing better performance of equipment have included improved lubricant facilities, use of bearings and changes in design that have resulted in the manufacture of more efficient machinery especially suited for all the different conditions found in the oil fields. Then there is standardization, which not only has made it possible to interchange the products made by different manufacturers, but in many cases has brought important improvements in specifications.

The past few years have witnessed development of a large number of service companies which have reduced oil company overhead and by doing work for a large number of different concerns have made it possible for engineers to become specialists in fields that otherwise would not have seen such specialization. Some of the important work performed by service companies today include: drilling, cementing, acidizing, gun perforating, electrical logging, directional drilling, well surveying, radioactivity logging, core analysis, mud analysis, seismograph and other exploration services, well shooting, cutting and fishing, sidewall sampling, temperature surveys, aerial mapping, formation testing, depth determinations, fluid-level measuring, perforation cleaning and washing, clean-out work, pipe-thread inspection and others.

The present day equipment purchaser is in an enviable position compared with his predecessors. He can buy a wide range of drilling or producing equipment to fit any set of conditions. The industry is indebted to the equipment manufacturer for many of these advancements, and the list of aids still grows.

A look at a few of the machinery items used in the oil fields and a brief comparison of their standards today with those of the past, is convincing proof of the important role

Banking, Too, Has Changed

WHILE vast improvements have been made in drilling and production methods in the petroleum industry during the past quarter-century, banking, too, has changed. But throughout this period this bank has been, "The Oil Bank of America."

NATIONAL BANK OF TULSA

The Oil Bank of America

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

the manufacturer of equipment, frequently assisted by suggestions of oil operators, has played in the development of modern efficient technique. Twenty-five years ago marked the real entrance of steel and engineering into the equipment picture, so it is not surprising that progress during this time has been greater than in the era preceding.

Derrick Advancements

Wooden derricks have been replaced with all-steel structures that were just attaining some degree of popularity about 25 years ago, and there has been a steady increase in strength and size of these steel units. The height has risen from a maximum of 106 feet in 1916, to 122 feet, then to 136 feet, which is the standard for rotary drilling today, but taller derricks have been used—up to 178 feet. These taller structures have provided the additional headroom needed for heavier drilling equipment and for handling longer stands of drill pipe. The base of the derrick has increased from 20 feet square to 30 or more feet, giving room for large equipment and for stacking more stands of drill pipe as drilling penetrated to greater depths. Lifting capacity of derricks has been boosted to more than a million pounds.

A practice that has come into vogue since 1928 has been the use of steel substructures, which raises the derrick floor from 8 to 16 feet above the ground. This, when the taller units are used, provides ample room for placing all control equipment under the derrick, but above ground for easy accessibility, eliminating the excavated cellar.

Meanwhile, the trend toward improved portability has even reached derricks, particularly in recent years. With the development of portable servicing units having derricks and hoists designed to handle up to 10,000 feet of tubing and rods, it has become practice in many areas to remove derricks from the well site upon completion. This permits one derrick to be used for drilling of many wells, lowering investment costs. If the terrain is flat and favorable, and the distance between locations comparatively short, a recent development has been that of skidding erected derricks from location to location. Some rigs have been especially designed on wheels so even the drilling equipment may be moved in sections in this fashion, and reassembled with quick-union connections, thereby greatly reducing moving expense.

The importance attached to portability in modern drilling, has resulted in the development and a sharp trend toward use for shallow and medium depths of truck-mounted units that carry their own derricks. Some of these are equipped with extension or telescoping type derricks capable of drilling relatively deep rotary holes. In addition to the derrick, they are complete with rotary table, drawworks, power takeoffs, mud pumps and other items permanently installed on the trucks. They can move from site to site at regulation driving speeds.

Another innovation has been the development of steel derricks that may be assembled horizontally on the ground and then raised to an upright position as a unit. These derricks are fabricated in sections that can be moved without difficulty to new locations, and then connected together on the ground. The drawworks is used to raise the completed structure into its normal vertical position.

Prime Movers

The exceptionally wide range of selectivity presented the equipment purchaser today is well exemplified by prime movers, available in large and small sizes in steam engines, different types of internal-combustion engines, diesel-electric and electric rigs.

The steam generating plant of 1916 consisted of not more than a 65-horsepower semi-open-bottom boiler with a working pressure of 150 to 175 pounds. At present the standard type boiler is 135 to 150 horsepower with working pressure of around 350 pounds, and some 500-pound-working-pressure boilers have been used. The modern big boiler weighs 40,000 pounds in contrast with a maximum of 15,000 pounds 25 years ago, and is of the full open-bottom type. The dome has been eliminated by a number of manufacturers, and some have adopted all-welded construction.

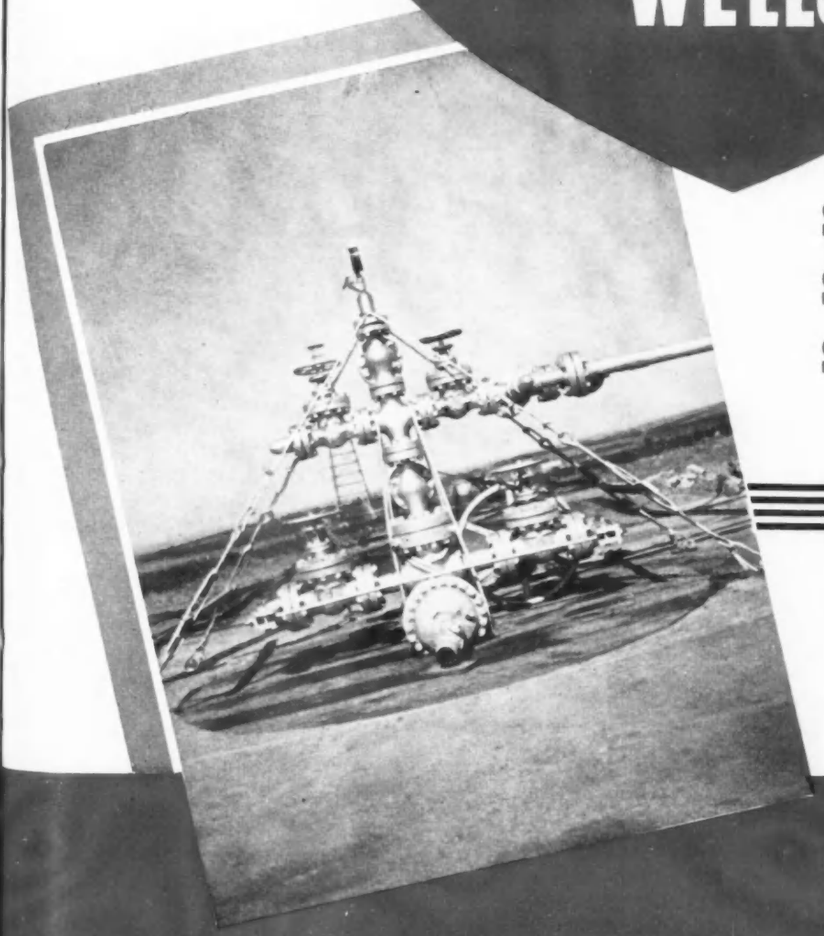
The oil-country steam engine has undergone a great evolution. A quarter of a century ago the oil fields had nothing but single cylinder steam engines, the most popular sizes being 15 to 30 horsepower, usually of 10x12 to 12x12 cylinder size. The materials used in engines of those days were simple gray iron and carbon steels. At present, steam drilling engines are twin-cylinder units up to 2000 horsepower, built for 350 to 500 pounds steam pressure and high superheat. They are equipped with devices for low maintenance cost and ease of operation, among which could be mentioned removable cylinder liners and power-operated reverse control mechanisms. Steam engines today are built of high tensile castings and forgings, together with heat-treated alloy steels, so they are capable of continuous, trouble-free, high-speed, heavy-duty hoisting and drilling.

There have been many advancements in heat conservation. Use of superheaters, of completely insulated steam systems, and preheating of boiler feedwater, have resulted in large savings.

Within the past decade there has been a marked increase in the use of multi-cylinder internal combustion engines as drilling prime movers. Rigs using internal combustion engines are either driven directly from the prime movers or by electricity generated at the well site by engine-driven-generators. Various types of engines are in use, including: diesels; low pressure, spark ignition units that burn diesel fuels; and regular spark ignition units using gasoline, natural gas or butane as fuel. Many of the engines are convertible from one fuel to another with minor adjustments.

While gas-engine rigs had been used for several years, the first attempt to employ diesels came with the development of the light-weight diesel in about 1928. Evolution of the diesel from its original bulky size and slow speed to the present stage of easy portability and medium to high speeds has contributed much to the popularity of this type of prime mover. Today, all forms of internal-combustion engines are employed successfully in drilling operations in increasing numbers. During this time hydraulic couplings or torque converters have been developed, overcoming the greatest drawback to mechanical rigs by providing the flexibility in power required in drilling. Rigs of this type have demonstrated dependable and economical operation, and moving and rigging up operations are accomplished easily. Such rigs may be operated by one or more engines, and in the case of multiple units are connected so their output may be compounded whenever desired. A wide range of horsepower ratings makes these rigs suitable for either shallow or deep drilling. The early practice of adapting internal combustion engines to draw-

Let these 7 "SAFETY FIRSTS" PROTECT YOUR WELLS



SAFE TO DRILL UNDER PRESSURE

SAFE TO RUN TUBING INSIDE TUBING UNDER PRESSURE

SAFE TO FISH UNDER PRESSURE

SAFE TO SET PACKERS UNDER PRESSURE

SAFE TO LOWER TUBING UNDER PRESSURE

SAFE TO ROTATE CASING WHILE CEMENTING

SAFE TO PRODUCE TWO FORMATIONS INDEPENDENTLY IN ONE WELL

The Kerotest Well Control System* places your well under complete control and provides the amazing flexibility that meets all drilling conditions—stymies every drilling emergency. Your Kerotest Well Control System is engineered to meet your individual requirements and is completely assembled in our shops and tested far beyond the most trying demands of field service. Why not make *your* wells totally safe with Kerotest Well Control?

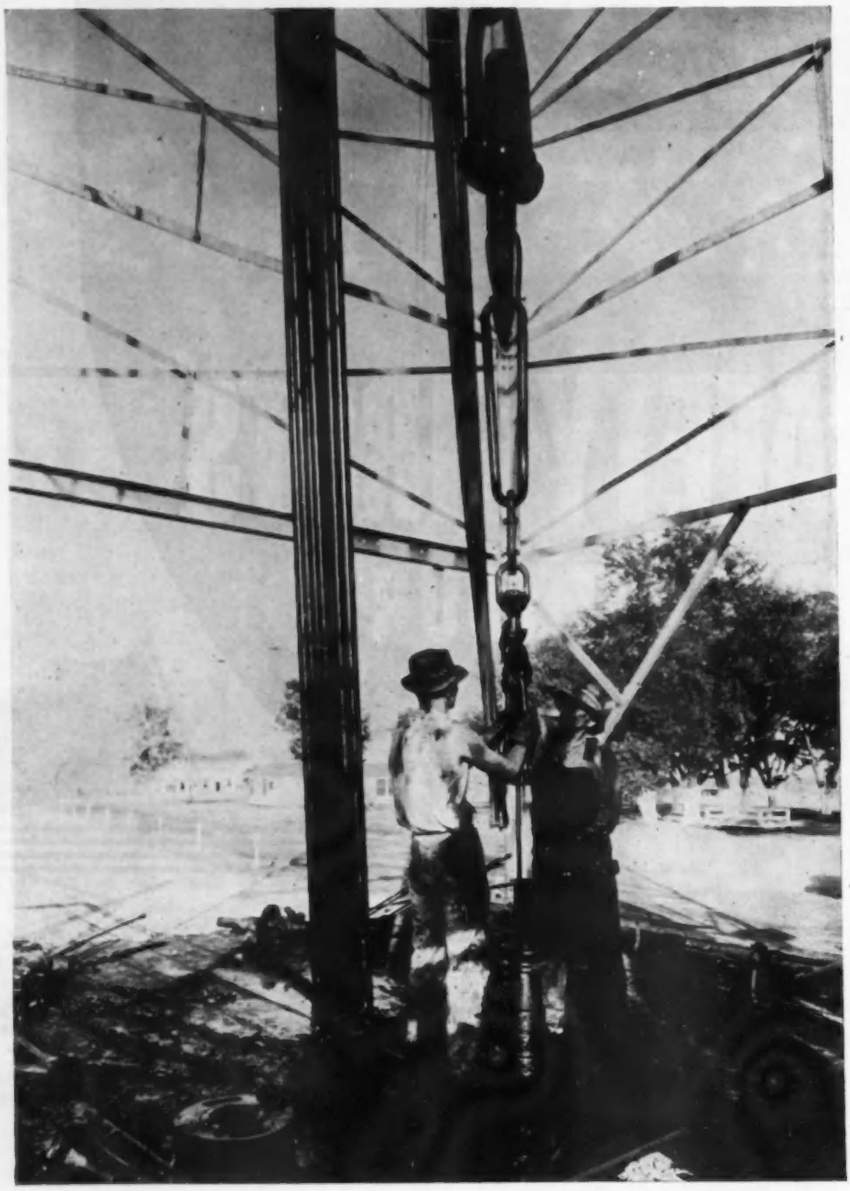
**Licensed under patents of the Gray Tool Company*

KEROTEST MANUFACTURING COMPANY

PITTSBURGH, PENNSYLVANIA

Write
FOR THE NEW KEROTEST CATALOG 41

KEROTEST



—Robert Yarnall Richie Photo

Increased production and reduced operating costs have resulted from elimination of many mechanical pumping troubles, which have been achieved by improved sucker rods and other machinery and by proper selection of operating conditions through well studies.

works designed for steam operation has been supplanted by drawworks designed with friction clutches, enclosed chain or gear box transmission and reduced number of shafts.

The first diesel-electric direct-current rig was placed in operation in May, 1930. It used the variable voltage system, providing flexibility in speeds and power, which is still the fundamental principle of such rigs. By early 1935, a total of 13 such diesel-electric rigs were in operation, and since that time their use has become common. These rigs are used in a wide range of hookups, up to 12 small engines driving relatively low power generators. This provides a wide flexibility of speed control to meet different drilling requirements from hoisting to rotation and mud circulation. The earliest drives employed only two generators for series operation; one for the mud pump during drilling operations, one for rotary-table power through the drawworks, with the two placed in series for hoisting. The parallel system of generator operation was developed as a result of the demand for more horsepower in deeper drilling.

Alternating current electric drilling is another type of rig in service. During the past year the deepest alternating current test in history was completed at 14,622 feet, the second greatest depth reached by any type of prime mover. The rotary table was driven by a separate direct-drive 125-horsepower electric motor, fully protected from mud by a metal guard and cooled by a forced draft ventilating system set under the derrick floor. Two 125-horsepower electric motors synchronized through a reduction gear furnished power to the drawworks.

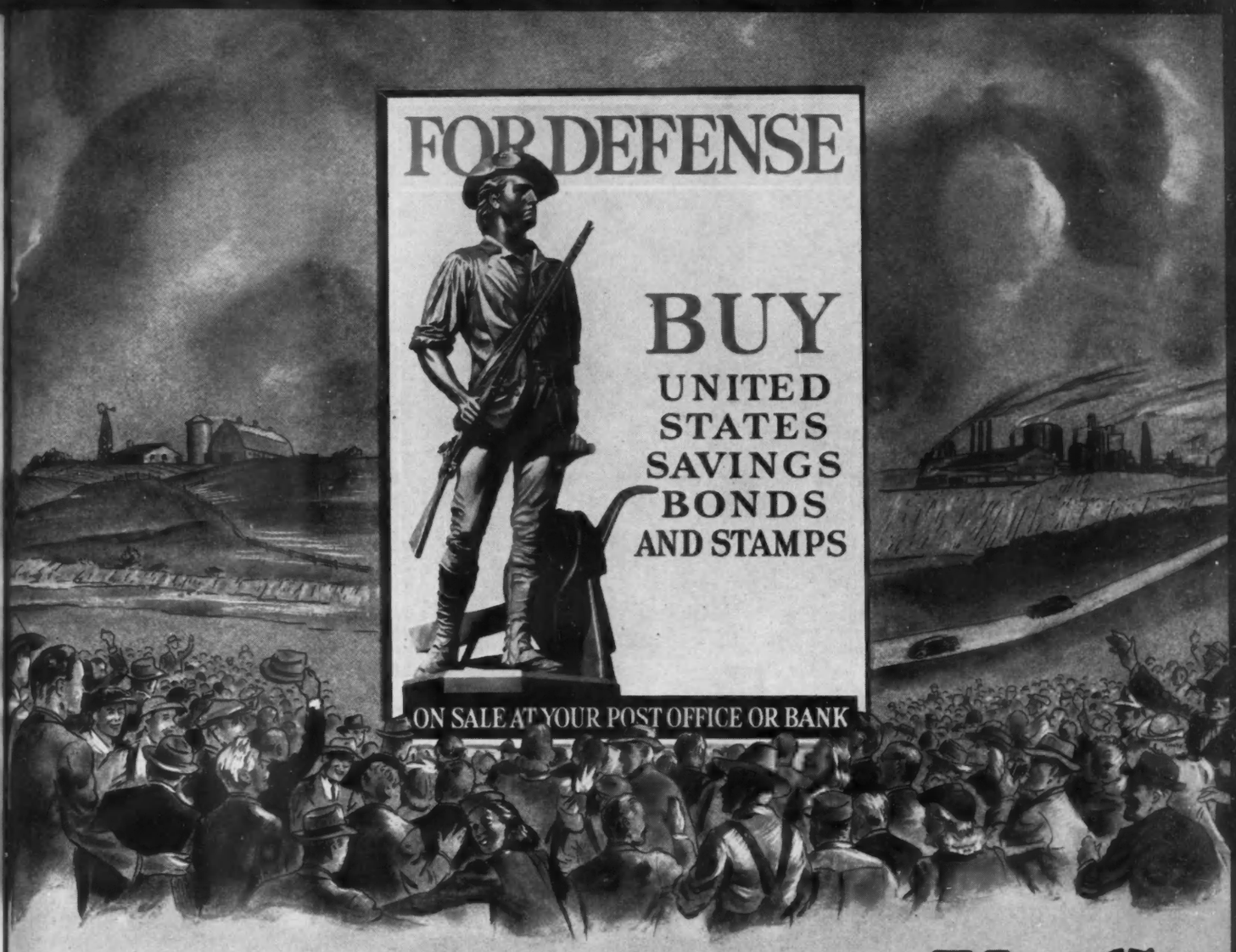
Hoisting Equipment

While fewer round trips are made today, due to improved bit, tool-joint and drill-pipe service, the time for those that are necessary has been reduced by faster hoisting operations. Meanwhile, drawworks, wire lines, traveling and crown blocks have been strengthened to handle the heavier loads imposed upon them by modern deep drilling.

The drawworks of 25 years ago were very crude pieces of machinery, consisting chiefly of a lot of cast iron. They were a field assembly of drum shaft and line shaft, which when mounted in babbitted bearings supported on heavy wooden posts, provided a two-speed hoist and a drive from the line shaft to the rotary machine. The drum, brake, sprockets and clutches were of cast iron and replacements were frequent. The brake had for friction material maple wood blocks. Steel posts, double brakes, a two-speed attachment, and a rotary-drive-clutch sprocket were offered as optional features and some attempt had been made to place the clutch and brake levers in a convenient location. Weights of "heavy duty" hoists, with 4- and 5-inch shafts, ranged between 10,000 and 12,000 pounds, with prices between $900 and $1100. Power was transmitted entirely by chains which were greatly inferior to the present day alloy-steel, precision made chain.

A foot lever to operate the high-speed drum-shaft-clutch sprocket was a feature emphasized in the early twenties. To increase rigidity and reduce vibration, a fourth post braced against the engine block was offered as an optional feature on one hoist, as were also drum and brake flange rims of steel instead of semi-steel. Brake flanges were being cast with fins to air-cool and dissipate heat from the brakes.

By 1928 basic designs still fol-



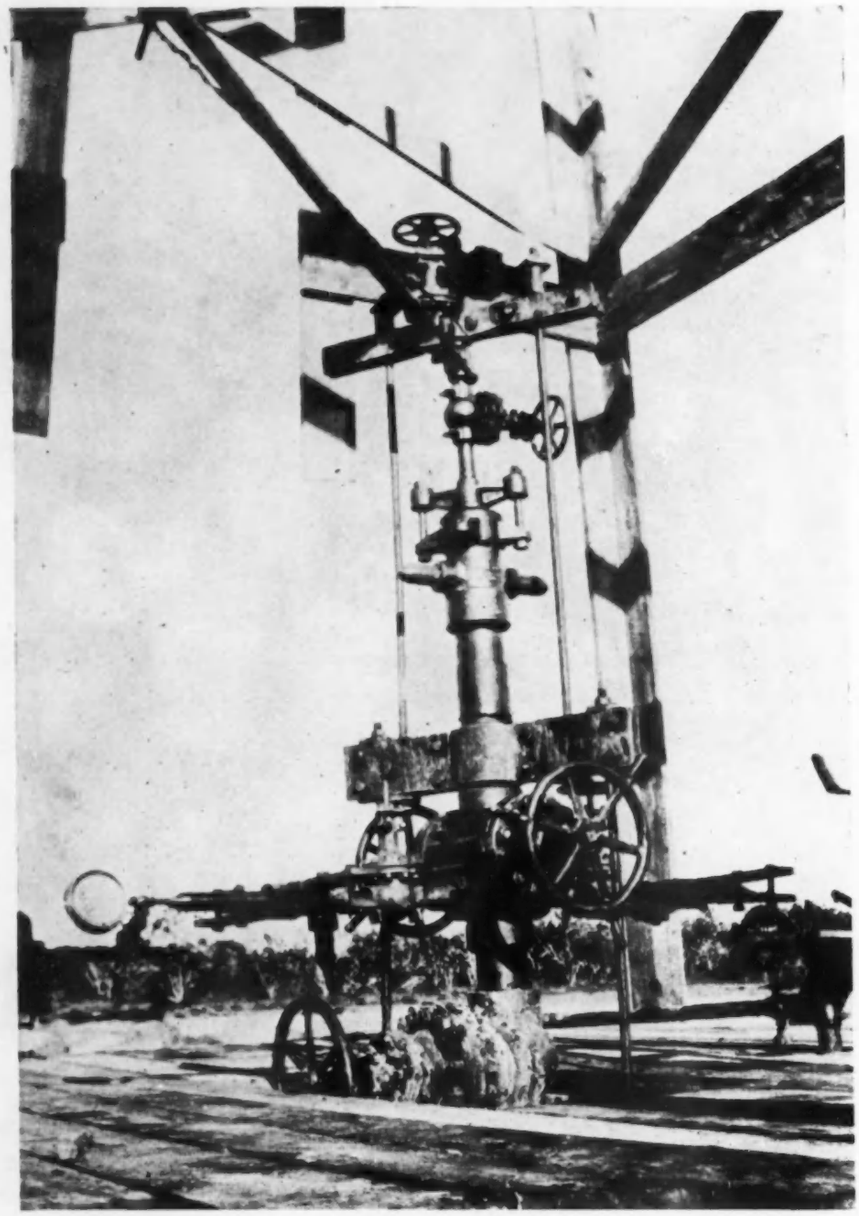
AN INVESTMENT IN U. S.

Whatever sacrifice we are called upon to make—in time, convenience and cash—calm reasoning would seem to indicate that it is a low price to pay for the objective upon which we have set our hearts and our minds.

What we seek to preserve for ourselves and bequeathe to our children is a way of life that affects our living through all the stages of our sojourn on earth: the right of children to a childhood unhampered by bitterness and regimentation; the right of youth to opportunities limited only by its own ability and ambition; the right of men and women to the fruits of their labor and the bounties of their country; and the right of old people to peace and security.

The heritage has been purchased for us in the sweat and blood of our forebears. To defend it is both the duty and the privilege of all who have partaken of its benefits . . . Gaso Pump & Burner Mfg. Co., 902 E. First Street, Tulsa, Okla. Export Office: 149 Broadway, New York. Houston: 5716 Buffalo Speedway. Los Angeles: Service Oil Field Supply Co., 5333 S. Riverside Drive.

GASO PUMPS
for every oil industry need



—Photo by W. C. Andrus

Hook-up on one of the early wells to be tubed under pressure. Prior to running tubing every valve in the Christmas tree was leaking. Afterwards it registered 1450 pounds pressure.

lowed the conventional three-post type of construction, but refinements and improvements were becoming conspicuous. Manganese steel sprockets, automatic catheads, heavy "H" beam steel posts, pedal controls, reversible brake bands, and three-speed roller bearing drum shafts were all featured in literature of the late twenties and early thirties. Top weights had increased to 18,000 pounds per unit. A comparatively new development was the three-shaft, four-speed hoist, with only two posts but of extra-heavy construction, recommended for depths up to 10,000 feet. These units weighed 22,000 pounds and were adapted to all types of prime movers.

Marked improvements in hoists have followed in years succeeding the middle and late thirties. The unitized hoist with skid-type base making it fully portable was a development of this period. Double engine sprockets on the jack shaft made it possible to eliminate the line shaft, and at the same time provide for two rotary speeds and four hoisting speeds. On some hoists, a third shaft was used only for cathead service. Sprocket tooth form has been improved in conjunction with chain improvement, reducing tooth and chain impact. Accuracy and duplication of the tooth form are now obtained by the process of machine-cutting the teeth from the solid.

Present light- and medium-duty hoists, which are self-contained and highly portable, are designed mainly for internal-combustion engines and have mechanically or air-operated friction clutches on input and drum shafts. Internally water-cooled brake flanges, hydromatic brakes as optional features, four to eight hoisting speeds, and two or more rotary speeds with friction clutch control and multiple roller chain operating in an oil bath are now common. All shafts are roller-bearing type and main shafts are supported in grease-packed, self-aligning roller-bearing housings with all lubricating connections located at one central point. Cat-line rollers with line lock, spinning-line guides, sensitive brake control with locking device, and numerous other improvements have been added so that the present hoist no longer resembles its predecessor except in name. These semi-portable hoists weigh from 20,000 to 30,000 pounds and are designed for depths of from 5000 to 10,000 feet. Heavy-duty hoists, except for having fewer hoisting and rotary speeds, and no friction clutches, resemble the lighter hoists in many particulars. These monsters weigh from 40,000 to 50,000 pounds, cost in the neighborhood of $22,500 and are designed for depths of 12,000 to 17,000 feet.

Improvements in traveling and crown blocks have consisted of better metallurgy, refined design, enlargement and addition of lubricating systems. Up until the early 20's, blocks were constructed with cast iron sheaves, bronze bushed, which were lubricated by means of oil poured into a combination oil cup and center pin nut which completely filled the center pin and the oil recesses in the sheaves. It was at this time that a compression greasing system for both crown and traveling blocks was introduced. Following the introduction of efficient lubricating means, roller bearings were introduced, then steel sheaves, machined for different sizes of wire line. There has been constant improvement in the quality of steel used in the sheaves. Meanwhile, the weight of traveling blocks has increased from a maximum of 6000 pounds in 1916 to more than 11,000 pounds. Capacities have increased up to 350 tons, and sheave diameters have

to the Oil Industry

In 1930 . . . the single small building shown at the left sufficed.

First—One size pump and one size motor.

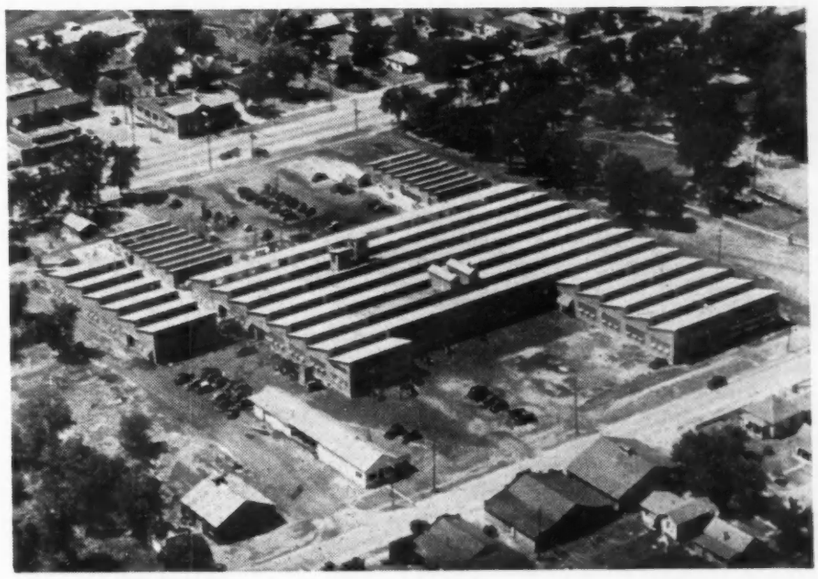
Eleven years later

Pumps for 10 barrels to 15,000 barrels per day.
34 Motor sizes 3½ to 135 HP.
Units for any casing size from 5½-inch up.

Why the multiplication of sizes?
To meet the service demands of the Industry.

Why the increased usage shown on the opposite page?
Because the Industry's need for low cost pumping has been met.

Today . . . necessary service to the Industry requires the extensive plant shown at the right. Year by year facilities have been added in both floor space and operations performed, until now all foundry, tube drawing, heat treating and electroplating operations are conducted here in addition to the mechanical and electrical manufacturing work always carried on.



REDA REPRESENTATIVES

Oklahoma City, Okla.	**Midland, Texas**	**Centralia, Illinois**
St. Louis, Oklahoma	**Seguin, Texas**	**Los Angeles, Calif.**

been enlarged to accommodate the larger wire lines used with present deep drilling.

Steel-wire lines have been improved in keeping with the advances in other parts of the drilling hoisting system. Pliable stronger modern lines not only are capable of lifting the heavier loads, but give much longer service as well.

Rotation Mechanism

Whereas the rotary table of 25 years ago was made for bit speeds of 50 to 100 revolutions per minute, today they are designed for speeds up to 1000 revolutions a minute. Naturally, many improvements were required to make this possible.

Rotaries of the vintage of 1916 were constructed chiefly of cast iron in sizes ranging from 14½ to 27 inches and weighs from 3000 to 7500 pounds. They had exposed cast-tooth ring and pinion gears. Table roller bearings were exposed to the elements with a parting between the base and table. The base was made in two sections and bolted together. Pinion-shaft bearings were fitted with bronze sleeves and the chain sprocket was driven by a spline type of jaw clutch. With the oil can constantly in service a well might be drilled without renewing the bearings, however, several sets of sleeves usually were kept on hand. The base construction made it nearly impossible to maintain perfect alignment of the working parts.

By 1923 refinements and improved designs emphasized new features The make-and-break rotary is associated with this period. The clutch-type sprocket was eliminated on some of the new models. Wooden skids were still in vogue but weights and selling prices had increased with one-piece bases, wider use of cast steel, alloy-steel cones and races, and improved gear rings and bearings.

As the years passed, the rotary table became a precise piece of machinery, made with the finest of materials and workmanship. Improved lubricating features have been an outstanding development, and in 1930 oil-bath rotaries were offered. Skids were eliminated and replaced by heavy cast bases with a corresponding increase in weight. The drive sprocket, however, continued to be mounted on the pinion shaft between the shaft bearings.

During the 30's, advancements in design and construction were rapid. Metallurgical research played an important part in the selection of steels for critical moving and wearing parts. Weights were reduced because of greater inherent strength of the metals used. Advancement and improvements in recent years include such features as: totally-enclosed, grease-packed, and mud-proof pinion and shaft roller-bearing assemblies; machine-cut heat-treated alloy-steel spiral-bevel pinions and ring gears to reduce impact and eliminate noise; heat-treated and ground alloy-steel ball bearings and races of high Brinell hardness suitable for high rotating speeds; one-piece cast-steel base; circulating oil-bath lubricating system; overhand sprocket drive; effective mud exclusion from base through elaborate labyrinth systems; and fully-protected two-way locking dog assembly.

The common method of suspending the pipe in the rotary table 25 years ago was by means of grip rings, involving a very tedious procedure for engaging and releasing the pipe, as well as being generally unreliable. Sometime about 1919 the first rotary with solid wedges, in two parts, made its appearance. Although they wore rapidly and were generally unsatisfactory because of the irregularities in the pipe, they marked the beginning of modern suspension methods. Shortly afterwards, a rotary slip comprised of several sections, each flexibly connected to provide perfect freedom to align themselves, made their bow. Soon these segments were made of fine heat-treated and machined metal. The basic principle of flexible segments is retained in the rotary slips of today, which have been improved through better metals and workmanship, as well as the introduction of friction-type slips, which instead of having a tooth surface have forged-steel segments with knurled faces.

While the conventional method of driving the rotary table remains by means of a chain from the drawworks, use of a separate prime mover for this purpose has become popular in recent years. This has been especially true in connection with high-speed rotation, although such hook-ups also are employed for ordinary rates of rotating. One procedure is to place the prime mover on the derrick floor, direct connected to the rotary table by a gear box or transmission. This permits the use of a relatively low-powered prime mover. This procedure was first employed in 1935. Another individual rotary-table drive is to place the prime mover below the derrick floor, connecting it by chain to the pinion drive shaft.

Drilling Strings

It has been possible to use the increased rotation ability of the modern rotary table because of equal improvement in the drilling string, which also has enabled drilling depths to increase three fold during the 25 years.

The drill pipe has been improved through advancements in metallurgy and design, until a string will drill many times more footage than dreamed of 25 years ago.

An important factor in the improvement of drill-pipe performance has been the reduction in tool-joint failures. The rotary tool joint was invented just prior to 1910, but was not used in large quantity until about 1916. At that time it was the usual practice to make tool joints from railroad car axles, heat treatment being limited to cyaniding the pin only. Heat-treated alloy-steel joints were introduced in 1919 and immediately improved performance resulted. The first joints were made with threads of comparatively fine pitch, but coarser threads were soon developed in order to increase their service life. Tool joints having Acme threads were introduced in 1919, and in 1926 the American Petroleum Institute approved a standard for "regular" tool joints which subsequently was expanded to include the "full hole" type and more recently the "internal flush" design. The advantage of the last two types over the first lies mainly in the increased bore through the joint, thus reducing the pressure losses in the mud stream and enabling the use of larger wire-line core barrels and other wire-line equipment.

In 1924 the American Petroleum Institute adopted a thread profile having rounded crests and roots as the standard for drill-pipe threads and established uniform pitch diameters and manufacturing tolerances.

In the early days it was common practice for the drilling crews to install tool joints on the drill pipe at the rig, which frequently resulted in galled threads that caused failures. A method for machine bucking the joints on the pipe in shops under closely controlled conditions was developed in 1931. The

[*Continued on page 203*]

Modern Prospecting

A Broad and Complex Science

By WARREN L. BAKER, Editor

THE years have witnessed remarkable advancements in the art of prospecting for oil. There has been a progressive change from the relatively simple methods of surface geology of 25 years ago to a multiple approach in which a number of highly developed exploration methods, petroleum engineeering and development and production practices are combined to such a degree that demarcation is exceptionally difficult. Consequently, modern exploration has become an extremely broad, complex and accurate enterprise.

The whole history of the advancement of oil prospecting has been one of constant broadening of the knowledge of oil accumulations and in methods for detecting their existence. First it was the anticlinal theory, then the structural, and now the trap theory. Each of these geological ideas has had associated with it some one or more distinctive type of discovery method, so the history of the advancements of oil prospecting really is a series

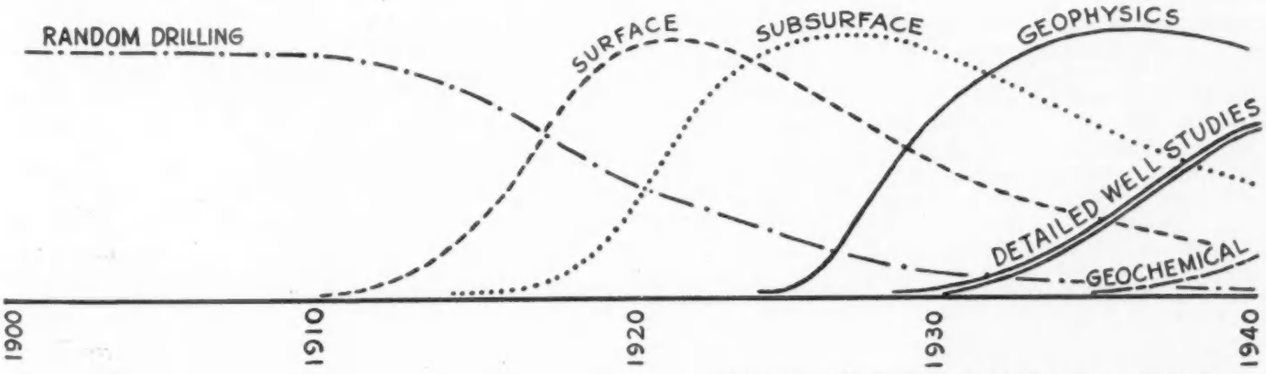
of more or less separate and distinct techniques, rather than a steady development of any one principle. It has been the history of each method that it broadened the field of search materially, soon attained a period of peak application, then declined gradually in importance. The decline has occurred not due to any failure of the method for all can be practiced more accurately today than in the past and are used to some degree yet, but because of the more or less exhaustion of the type of accumulations to which it could be applied most successfully.

It is particularly significant that none of the newer methods has forced the complete discard of old methods. Instead they have tended to supplement and add to the information resulting from earlier and less exacting methods. Thus it is that modern prospecting is such a broad, complex field of endeavor—offering an unusual degree of accuracy.

Had it not been for the advancement in prospecting the oil industry could not have grown to major proportions since early exploration was restricted to structures evident at the surface. Only the adaptation of modern science has made it possible to detect hidden folding, thus opening vast new reserves to match expanding consumption.

Surface Mapping

Although men applied geologic reasoning on the origin of the earth before the dawn of recorded history, the use of geology in petroleum did not commence until after the turn of the century and did not amount to much until about 1912



—With exception of some modifications, drawing taken from drawing by A. I. Levorsen, A.A.P.G. Bulletin, August, 1940

Graph illustrating the gradual changes in dominant geological methods used in petroleum exploration. It is not quantitative, but rather qualitative.

or 1913, at which time several of the larger companies operating in Oklahoma employed geologists. These men engaged strictly in surface structural mapping, which marks the first era of geologic petroleum exploration that extended until the early 1920's as the most dominant prospecting method, after which it has declined gradually as surface structural indications were exhausted, and as new advanced prospecting methods made their appearance.

Drilling depths 25 years ago were relatively shallow, and surface structure, combined with other surface evidences that might be present, was the usual geological clue to existence of conforming structures that might underlie the surface topography. Trend lines also were recognized by some prospectors, and the search for salt domes along the Gulf Coast, initiated with the discovery of famed Spindletop in 1901, was purely a search for surface indications. It was at this time that early surface mapping procedure by means of clinometers, hand levels and spirit levels was giving way to the plane table and alidade.

However, much of the prospecting up until 1920 was still done by means of random drilling suggested by seepages and other surface evidences. This period also takes one back to the era in which divining-rod artists were common. Some had apparatus costing thousands of dollars, while others used the old "witching stick" dating to antiquity.

The increase in number of petroleum geologists was slow during the first few years, but by 1917 it was estimated that at least 200 geologists were employed by oil concerns, and a few consulting geologists were rendering service to their clients. The following few years were important in geological ranks. They marked the real beginning of a rapid expansion in demand for petroleum, due to sharply accelerated use of automobiles and other oil-consuming devices. Exploration methods in use at the time were failing to keep pace with the growth of demand, United States stocks of crude oil falling from an average of approximately 260 days' supply in 1915 to a low of 98 days in 1920, and the weighted average price of crude oil rose from 65 cents in 1915 to $3.07 a barrel in 1920. Consequently, an intensified search for new fields ensued. The industry turned to the geological profession at this time, and it grew by leaps and bounds—so it is not far amiss to say that 25 years ago marked the founding of the modern art of prospecting. Furthermore, it was during the years immediately following, the early 1920's, when many important scientific developments occurred that were to be of invaluable assistance in the search for additional oil sources.

Important improvements in surface mapping have been made since 1920, owing largely to introduction of aerial photography, a technique developed by army fliers during the World War. Large areas can be mapped quickly and cheaply. Many topographic details often indistinguishable, even by direct observation, are disclosed. Aerial maps made from photographs reveal many structural features, such as faults and other details. It is mostly because of the adoption of aerial photography that surface geology remains one of the methods still in use by geologists in conjunction with other techniques. The advent of the stereocomparator and stereocartograph also has resulted in more precise maps than were formerly feasible.

Subsurface Geology Develops

With the sharp increase in consumption and an approaching scarcity of surface indications because of extensive prospecting, the early '20s found geologists needing a new technique.

Although surfaced geology continued to be the mainstay of most prospectors for several years thereafter, some leading technologists prior to 1920 were already giving more and more attention to the correlation of well logs and were using underground maps to aid in interpreting structures. Likewise, considerable knowledge was being developed by these leaders regarding various geologic structures that were favorable to petroleum accumulations. Thus it was that the period around 1920 marked the development of the subsurface geological era.

Subsurface geology was aided by the advent of the core drill, suggested as early as 1917 but apparently not used until about 1919. It proved of immeasurable help to the geologist, enabling him to make underground correlations and thus map structures in areas where surface outcrops were insufficient.

It was at about this time that coring devices also made their appearance in the oil industry. They permitted more accurate determination of tops of formations, and thereby provided a means for better correlations. Likewise, they provided the means of bringing subsurface formations to the surface for microscopic studies. Thus it was that the examination of samples from wells began on a sizeable scale in the early 1920's, when oil producers started employing geologists versed in paleontology—although paleontological studies were carried on sporadically by a few companies previously.

The peak of subsurface exploration was during the middle '20s to about 1930, and since has declined in its use as a discovery method. This is not to be confused with the routine subsurface mapping which goes on continually even today, and which is largely a method of keeping records and furnishing clues as to favorable areas for applying other methods of direct attack.

Geophysics Enter Picture

The next major advent in geological history was the introduction of geophysical instruments, which may be classed as the outstanding discovery method to date.

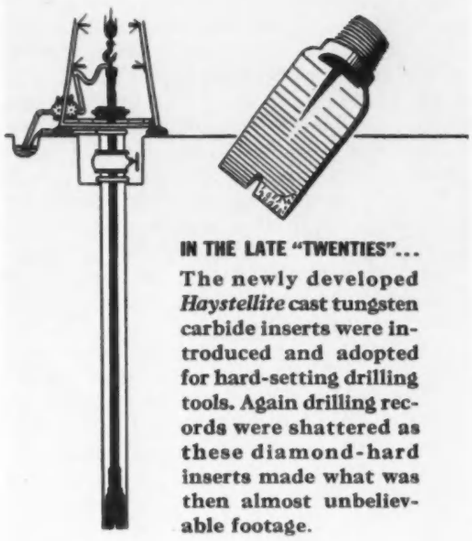
Although early experiments in this field took place during the middle of the 19th century, and some attempts at applying geophysics to the oil industry were made prior to 1920, it was not until the middle '20s that the method received wide recognition.

The first salt dome and oil structure discovered in the United States by any geophysical method was Nash dome in Brazoria County, Texas, which had been mapped with a torsion balance in 1924 but was not proven productive by the drill until 1926. An intensive campaign of torsion balance surveys, especially in the salt dome country, immediately followed. However, it was gradually supplanted by other methods, the first of which was the refraction seismograph which was extremely successful in the salt region of the Gulf Coast between 1924 and the early thirties.

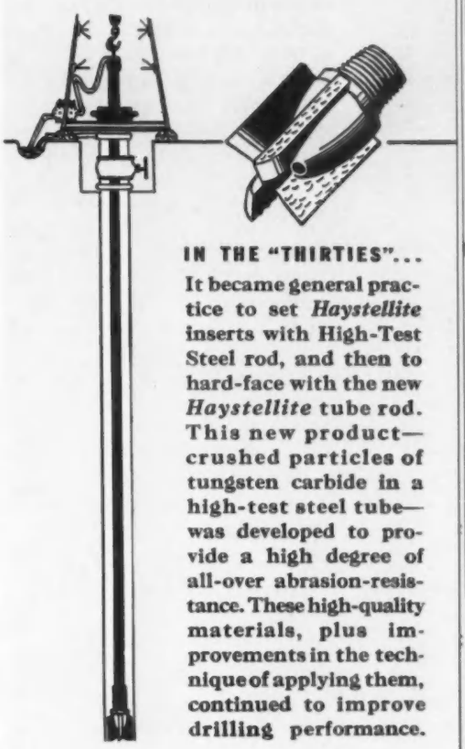
About 1931 the reflection seismograph came into use on the Gulf Coast and the industry had a new and vastly improved technique that has proven successful in many regions. The success of the reflection method was so pronounced that starting with three crews in 1929 the industry was using 250 in 1937, approximately one half of which work was being performed

Haynes Stellite Products
for more efficient drilling tools

IN THE EARLY "TWENTIES"...
Haynes Stellite Company introduced the practice of hard-facing oil well drilling bits with *Haynes Stellite* rod—and fishtail bits hard-faced with this non-ferrous alloy soon were making unprecedented drilling records in oil fields everywhere.

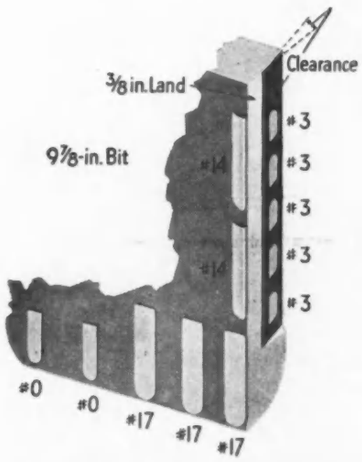


IN THE LATE "TWENTIES"...
The newly developed *Haystellite* cast tungsten carbide inserts were introduced and adopted for hard-setting drilling tools. Again drilling records were shattered as these diamond-hard inserts made what was then almost unbelievable footage.



IN THE "THIRTIES"...
It became general practice to set *Haystellite* inserts with High-Test Steel rod, and then to hard-face with the new *Haystellite* tube rod. This new product—crushed particles of tungsten carbide in a high-test steel tube—was developed to provide a high degree of all-over abrasion-resistance. These high-quality materials, plus improvements in the technique of applying them, continued to improve drilling performance.

17 YEARS OF DRILLING RECORDS



Shown above is a typical application of Haystellite inserts.

AND IN THE "FORTIES"... Bits hard-set with *Haystellite* inserts and hard-faced with *Haystellite* tube rod are still making outstanding drilling records. As new types and sizes of bits have been developed, Haynes Stellite Company has brought out additional sizes and shapes of uniformly hard and tough Haystellite inserts to fit them. Constant research work on hard-setting and hard-facing materials and on methods of applying them assures continued progress in the future.

For outstanding drilling performance and more footage of out-to-gauge hole per round trip, use the slight extra care required to make each bit the most efficient it can be made—and use the best materials available. We have the products, the experience, and the organization to help you do this. Call on us.

HAYNES STELLITE COMPANY
Unit of Union Carbide and Carbon Corporation

General Office and Works:
Kokomo, Indiana

UCC

Foreign Sales Department:
New York, N. Y.

HAYSTELLITE
TRADE MARK
Cast Tungsten Carbide Diamond Substitute

The words "Haystellite" and "Haynes Stellite" are registered trade-marks of Haynes Stellite Company.

by consulting companies. Steady improvement has kept the reflection seismic method alive. It is still the leading exploratory method today, although registering a nominal decrease in recent years.

Among the new geophysical developments has been the increased use of gravimeters, which reached a new all-time high during 1940 with a maximum of 66 survey parties in the field at one time and an average of 56 in continuous service during the year. The first oil field found by the gravity method was in 1934 with a pendulum type instrument. Since then the pendulum has practically disappeared as a prospecting instrument, but the gravimeter has grown in importance and nearly replaced the torsion balance. The gravimeter is still undergoing development, many new instruments having appeared in recent years, including several designed for use under water.

There has also been a slow but steady growth in magnetometer work, although still relatively a small volume, and it has been said "This geophysical method seems to be emerging from the 'dog house' to which it had been undeservedly banished by those who experienced disappointment as a result of its misuse."

In recent years electrical geophysical methods have received some attention in the oil fields, and are credited with mapping prospects in West Texas where usable reflections were well-nigh unobtainable. It is achieving great depths, and may come in for increasing emphasis. Continuous electrical profiling also is a new development, brought about by the devising of a "mobile electrode," consisting of a tractor with one wheel heavily spiked, to maintain continuous contact with the ground.

The advancements of geophysics would not be complete unless some mention were made of better interpretation of the resulting records. From experience, modern students of geophysical records find indications of structures that formerly meant nothing.

Stratigraphic and Allied Prospecting

Thus it is that by early 1930 or thereabouts, one finds the art of prospecting had developed into one involving surface geology, subsurface geology and geophysics. It is worthy of note that all these discovery methods are concerned solely with the finding and mapping of favorable structural traps.

Meanwhile, as knowledge of oil accumulations broadened, there developed a realization that many of the producing fields represented trap accumulations and studies were directed at an understanding of reservoirs of this type. Consequently, it is not surprising that new approaches to the problem of oil discovery have developed in recent years, and these (with the exception of improvements to older methods) have in many instances been directed along completely different lines of thought.

Once having started probing into such possibilities as stratigraphic trap accumulations, the geologist rapidly broadened the field to include other allied phases, such as sedimentation and reservoir-rock studies of porosity and permeability. With the belief growing that many of the structural accumulations of oil have been tested by the drill already, there has been an important movement along these lines of late.

It was realized early in such studies that a complete revisal of previous prospecting methods, which sought only structures, was necessary and much progress along this line has been achieved already. Besides a liberal drilling policy, the outstanding phase of stratigraphic-sedimentation-reservoir-rock prospecting consists of the most careful and complete sampling of formations that are drilled, which may be termed "detailed well studies." The accurate analysis of these samples, the correlation and comparison of the results in the form of sand maps, paleogeologic maps, cross sections, overlaps, isopach maps and geologic history, supplemented by all other available surface and subsurface information, are necessary. Thus it is not as simple an approach as the older methods of finding closed structures, and methods of procuring such data are so closely related with petroleum engineering, and development and producing practices that the individual fields approach inseparability.

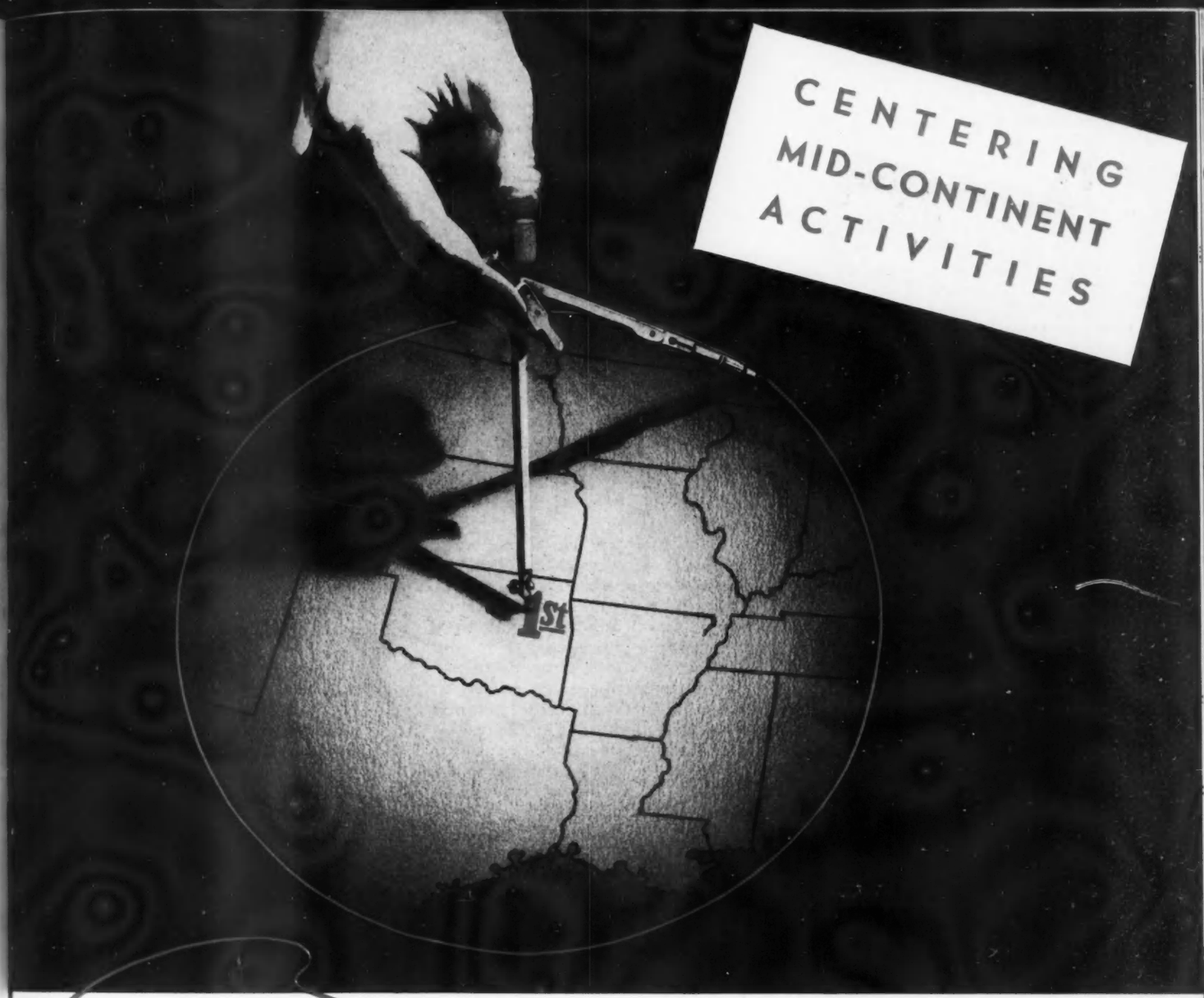
Many and varied are the new technological devices and services that are aiding the geologist, but generally speaking, they fall into a broad classification of "detailed well logs and analyses." This is the fastest growing group in prospecting methods today.

The electric well log has proven an invaluable source of information regarding geologic sections under exploration by the drill. Combined with paleontology, the electric log now conveys a picture of the stratigraphic sequence that is vastly superior to anything available in the past. The distribution of the sands and the lateral changes in faces within recognized zones are logged in a manner that is convertible to information of great value in appraising local and regional structural and stratigraphic conditions, as well as in detecting and gauging the potentiality of sands.

Continuous improvements have been made in the technique of electric well logging since its introduction into the United States in the early 1930's. One of the latter is gamma-ray well logging, which permits the taking of records in cased holes; whereas electric well logs are made in uncased holes immediately after drilling. The gamma-ray well log thus offers possibilities to the geologist of going back into old areas and reprospecting them in the light of knowledge gained through the years. Still another development is that of electric logging continuously and simultaneously while drilling.

An additional technical service, modern core analyses, based on an ever-widening background of experienced, vastly improved coring devices and advanced laboratory technique, presents inclusive formation data. Core analysis offers the geologist not only identification of the formation, but also affords him data on liquid saturation, which include the amount of pore space occupied by oil and water; permeability, which is an absolute measurement of the rate of fluid flow; porosity, which is the percentage of formation volume available for oil, gas and water. Interpretation of these data has wide geological and production applications. A fairly recent development in core analysis work has been the use of portable field laboratories that permit immediate analysis of any cores, and the use of coregraphs or core logs for plotting much of the information.

Direct microscopic determinations of oil and gas content of formation penetrations now can be made by continuous analysis of drilling mud returns during actual making of hole, and are proving an important additional geological and engineering tool. Use of recording instruments permit securing permanent, quick, continuous records of the relative quantity of oil and



1st of Tulsa ...

With experience dating back to the very first discovery of oil in the Mid-Continent area, this institution has rightfully earned the title, "First in Oil Banking". Progressive, oil-minded officers and directors are ready to serve you.

★ ★ ★ THE *First* NATIONAL BANK AND TRUST COMPANY

Of Tulsa

*MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

That's why most experienced riggers are strong

for Genuine **CROSBY CLIPS**

They know that its 58-year safety record is based on correct gripping design, drop forged steel construction, careful finish, ease of application.

Dealers with full stocks in all principal cities.

AMERICAN HOIST & DERRICK CO.

CHICAGO SAINT PAUL, MINNESOTA NEW YORK

AMERICAN TERRY DERRICK CO., SOUTH KEARNY, N. J.

For QUICK, ACCURATE TESTS

Use CURTIN CENTRIFUGES

No. 3420 ... 15 c.c. machine. Cranks and heads interchangeable with 100 c.c. machines.

Simple in design . . . Ruggedly built . . . Require no special care . . . Gear Ratio and throw of crank produce required speed with no strain. Curtin Centrifuges meet all **A.S.T.M. STANDARD METHOD D-96-40** and **A.P.I. CODE NO. 25** requirements. Full descriptive literature upon request.

W·H·CURTIN & CO. Inc

HOUSTON U·S·A TEXAS

gas shows without interfering with drilling operations, and are plotted against the drilling penetration rate to establish depths.

Still another type of permanent record in use today is the so-called drilling time-depth log, from which inferences are made regarding the nature of the formation being drilled. Since the speed of penetration is roughly in proportion to the hardness of the formation encountered, this method is essentially one of obtaining information regarding physical constants of the earth.

A very recent development has been the use of well diameter or well caliper logs. Designed originally to measure the diameter of drill holes, primarily for the purpose of determining the volume of cement likely to be needed, such records have indicated that they may become quite usable to the geologist as another means of obtaining correlation data. Results to date indicate that sand formations are represented on the charts by hole diameters corresponding closely to the size of the bit, while the holes through shales are considerably greater than the bit size.

Some attention is being given to geothermal measures. Temperature gradients in wells are important in studies of reservoir content and in correlation.

Slim-hole drilling has attracted much attention in the past few years, and the geologist in many instances has adopted this drilling procedure in his search for data. From a geological standpoint, the practice is to drill small diameter and less expensive holes largely for stratigraphic and sedimentation records, as a part of the prospecting procedure of an area.

Geochemical Prospecting

A new type of prospecting that has made its appearance is that of geochemical (soil analysis) prospecting, whose advocates claim that it has possibilities of not only locating structural traps but stratigraphic accumulations as well. New advancements in laboratory and interpretation techniques have broadened its field of application materially in recent years.

A new development in geochemistry prospecting, that supplements and substantiates surface data, is geochemical well logging. This type of "down-the-hole" soil analysis makes it possible to estimate the depth ahead to an oil reservoir, as well as detect the presence of oil and gas. Geochemical well logs are made from analyses of cuttings taken during routine drilling and from cores.

The seeker of new petroleum accumulations of today is still intimately concerned with structural problems, but the order is for increasing exactness. Modern geological examination proceeds by distinct stages as the geologist and allied scientists tackle an area. The normal sequence of methods of examination to be used is likely to be that of reconnaissance geology, detailed geologic mapping, magnetic or gravimetric mapping, or both, and finally core drilling or reflection seismology and perhaps geochemical prospecting.

However, in addition to structural details of great accuracy, the modern petroleum exploration engineer has to consider problems dealing with the character, distribution and trend of the multiple zones that are the potential source of oil, the intimate stratigraphic and sedimentary structure of the porous phases of these zones, and the physical characteristics of their fluid contents. Furthermore, he is interested in the interrelation of those factors which bear on the location of wells, the preservation of reservoir energy and the proper migration of oil which assure a most economical ultimate recovery. And in this respect the newly developed detailed well-logging methods are proving of great value.

Much of the reasoning of the petroleum geologist is by analogy so that the soundness of his deductions increases in direct proportion to the quantity and accuracy of the data with which he has worked. Obviously the more detailed the structural contours and the individual well data, the more intelligible becomes his conception of conditions—and this is the basis for modern oil prospecting.

BIBLIOGRAPHY

"Petroleum Geology," by A. I. Levorsen. American Association of Petroleum Geologists Bulletin, August, 1940, Volume 24, No. 8.

"Technical Evolution of Petroleum Geology," by O. L. Brace, THE OIL WEEKLY, March 31, 1941.

"Analysis of Mud Returns Locates Oil and Gas Zones," by Elton Sterrett, THE OIL WEEKLY, March 31, 1941.

"Core Analysis Presents Inclusive Formation Data," THE OIL WEEKLY, March 31, 1941.

"Future Position of Petroleum Geology," by E. DeGolyer, American Association of Petroleum Geologists Bulletin, August, 1940, Volume 24, No. 8.

"Geophysics," American Institute of Mining and Metallurgical Engineers Transactions, Volume 138.

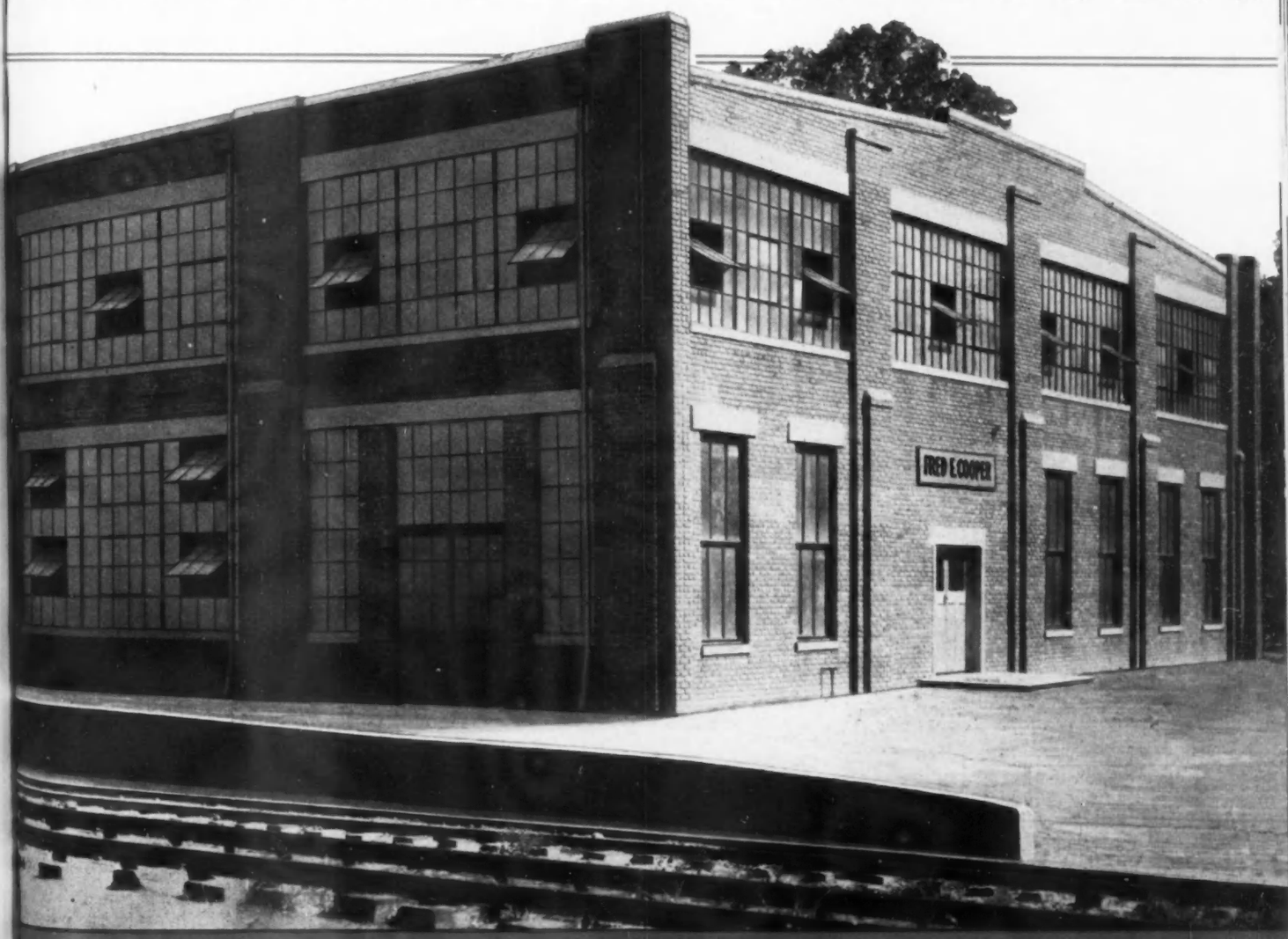
"New Advances Broaden Use of Geochemical Prospecting," THE OIL WEEKLY, April 14, 1941.

"Geophysical Applications in the Production of Oil," by W. T. Born, THE OIL WEEKLY, April 8, 1940.

"History and Development of Seismic Prospecting," by B. B. Weatherby, THE OIL WEEKLY, April 8, 1940.

SERVICE to those who produce oil is our job — and in doing it we work to one rigid standard of quality. Every Fred E. Cooper — Allis-Chalmers well servicing unit and power engine gives the full amount of performance that rightfully may be expected and MORE. The maintaining of this standard has been a vital factor in our growth to the world's largest organization devoted exclusively to the manufacture, sale and service of well pulling equipment and power engines.

We are proud of the fact that Allis-Chalmers equipment is doing its part by assisting the Oil Industry to meet the demands of the National Defense Program.



FRED E. Cooper

Hale Station, TULSA, OKLAHOMA
PHONE 7191 BOX 1890
BRANCH—9619 South Main St. - - - - - - - Los Angeles
BRANCH—1418 Franklin St. - - - - - - - - - Houston

Pipelining

Over a Quarter-Century

TWENTY-FIVE years ago pipelining was a trade, a handicraft. It had its classes of artisans, as distinct and sharply divided as those now existing in such industries bridge construction and tunnel digging. The pipe-line gang consisted of a boss or "gang pusher," one or two stabbers, as many jack men, one back-up man, one "dope" man, from 10 to 16 tong men, a water "boy" (often a superannuated tong man no longer able to throw his weight on the tongs), and last but far from least, a "collar pounder."

In the highly organized and sharply synchronized team-work of laying eight-inch or larger screw pipe, the collar pounder not only broke the incipient gripping of threads on pipe and in collar by vigorous blows of his hammer, but also set and maintained the tempo for the work, the gang of tong men lifting and bearing down on the tong handles in rhythm to the steady beat on the collar.

These pipe-line gangs often maintained their personnel intact from job to job, being shifted across country by the men in charge of line construction with promotions from the ranks of tong men and newcomers entering the craft at that point from the pick-and-shovel ditching gangs or from outside. The new man began on the tongs nearest the pipe, and worked progressively outward to the tips of the handles as he became more proficient.

Flush production imposed upon pipe lines the task of handling large volumes of oil. Field lines were frequently made up of 8-inch pipe in 20-foot joints, practically all screwed for oil transportation, though compression-type couplings, found satisfactory for gas transportation, occasionally were used on hurry-up oil lines, usually laid atop the ground, and under a probable short flowing life.

Smaller lines, laid after drop in initial production had made the big 8-inch flush carriers uneconomical, ran into trouble due to lack of thread standards, and one of the trials of the pusher was to insure enough change-over sub nipples on hand to enable the gang to connect abutting joints when, for instance, one end was threaded nine to the inch and its neighbor had only eight threads.

Ditching or trenching was a hand job, with most of the labor done by gangs of immigrants, each under the charge of an interpreter, through whom the few instructions of the management were transmitted. These gangs were recruited in the larger industrial centers, with Indianapolis serving the pipe-line industry much as Pittsburgh did the steel makers.

Where large gangs of immigrants were not used, much of the digging was on a contract basis, reduced to its simplest terms. Each digger became a contractor, undertaking to open a specified length of ditch—usually measured in terms of pipe joints and referred to as joints of ditch. This ditching was paid for at agreed-upon rates, and covered operations in average soils, with extra being paid for mucking in a swamp or hard-rock cutting. Ditch "contractors" were permitted to set their own hours, some working from before dawn to nearly midday, and laying off until the shadows began to lengthen, others putting in a full day from daylight until dark.

In spite of the apparently haphazard method of trenching, few delays were suffered through lack of open ditch ahead of the pipe-laying crew. Backfilling, now almost exclusively a machine job, was largely hand work, with the landowner and his teams sometimes entering the picture as a sub-contractor to cover the pipe and maintain the necessary fills. Cagey agrarians soon learned, through shyster lawyer operations, that this form of sub-contracting, while paying good wages for the work done, effectively closed the door against possible damage suits for stock or crop losses later, and thus soon lost favor.

Under strictly man-power operations, bending of larger lines taxed even the relatively large pipe-line gangs. To surmount this difficulty, a large number of prefabricated or shop bends would be sent out on each job, the theory being that one of the bends would fit any desired shift in line direction. In practice these shop bends merely accumulated ahead of the gang, requiring extra help or time to keep them clear of the laying, and bends were made through the use of kerosene-burning retorts, two in number, which were used to bring the pipe up to a temperature where deflection could be put in by man-power. Wrinkle-bending, intentional, was unthought-of, and many a scraper hung up on kinks introduced by the bending methods then used, and leaks developed in the thinned sections on the outside of curves which had been heated on the outside and stretched, as against fibre compression introduced by wrinkle-bending.

Corrosion was combatted by digging out the line, cleaning it by hand, and applying some type of paint or simply red-leading before replacing and backfilling. Hot-spots were beginning to be recognized, though many lines were uncovered from end to end and "treated," even though serious pitting might be evident over only comparatively short stretches. It was believed that the remainder of the line was about ready to disintegrate as the badly marked sections had already failed, and that complete protection was the only remedy.

The use of plastic or semi-fluid greases was unknown, although attempts had already been made to protect lines across swamps, salt marshes and through sections where experience indicated rapid corrosion by encasing the pipe in asphalt or concrete, the pipe being enclosed in a timber form, and the protective

RED E. Cooper
BRANCH—9619 South Main St. - - - - - - - Los Angeles
BRANCH—1418 Franklin St. - - - - - - - - - Houston

LIES UNDERGROUND

Ours is a land of far-flung mountains and prairies, rich in natural resources. Once our stalwart forefathers pioneered new trails, sought new worlds of fertile soil to till and virgin timber to fell. Though the surface of America has been explored, the search for new wealth goes on—underground. Mine shafts uncover new ore bodies and oil derricks throw their cross-webbed shadows on a hundred hills.

When Axelson began making deep-well plunger pumps and sucker rods 49 years ago, oil wells were shallow and drilling was a fascinating game. Oil land was plentiful and rewards for success far outweighed the costs of failure. 1200-foot wells were considered deep.

In 1941 oil wells no longer have bottoms. In California an oil well has been drilled to the depth of 15,004 feet. What is believed to be the deepest pumping well in the world, Axelson equipped, is producing 60 barrels of crude per day from a depth of 8,540 feet, nearly two miles straight down.

Stop and picture for a moment a spot approximately two miles from where you are sitting. Now imagine the difficulties of actuating a reciprocating plunger with a 48″ stroke on that spot with the motivating power being located where you are. That gives some idea of the problems involved in pumping an 8,000 foot well, but it doesn't begin to take in all the factors involved such as dead weight of rods, fluid resistance, corrosive action of fluid, sand cutting, gas emulsion and innumerable other hazards of oil production.

The last 25 years has been a period of aggressive development in the manufacture of oil field equipment. Better steel, better engineering, better manufacturing operations have all been combined to make possible pumping operations branded as fantastic 20 years ago. Pumps and sucker rods bearing the Axelson trademark are *helping oil companies conserve our nation's natural resources* by increasing the ultimate production of every oil well drilled.

Pledged to protect their consumers against products of inferior quality, Axelson have pioneered new oil producing frontiers throughout the world.

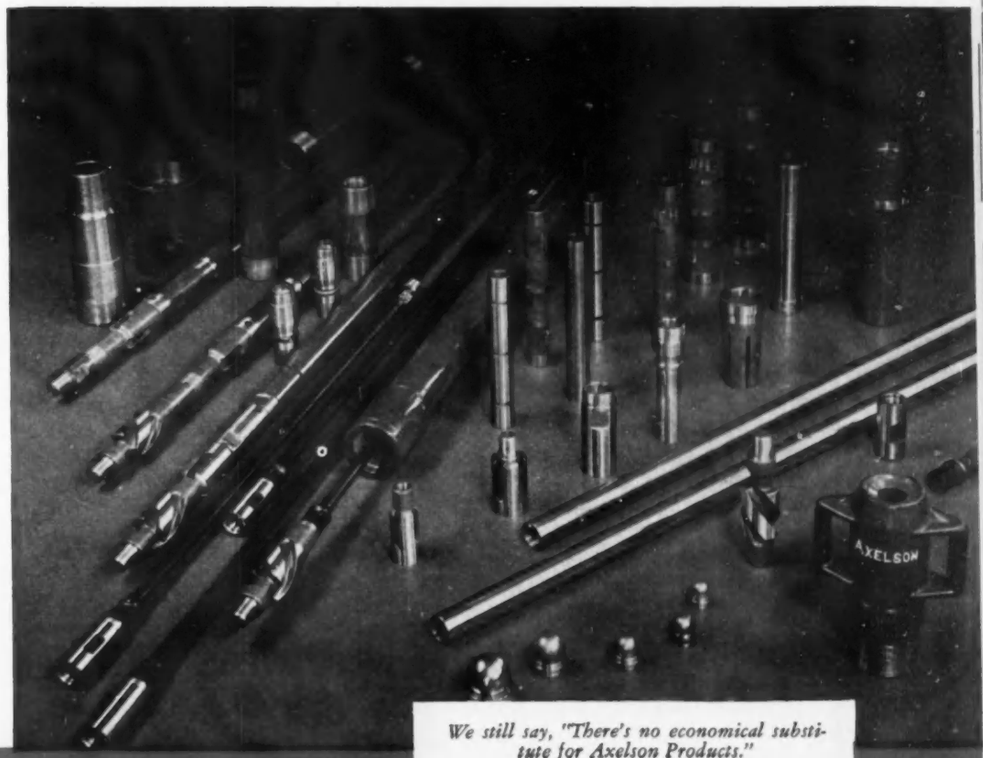
A MILLION YEARS TO MAKE

... an instant to destroy! Nature took a million years to make the gasoline that powers your car. Once destroyed it cannot be reclaimed. The oil industry's plan of conservation is your assurance of petroleum products for years to come.

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

AXELSON MANUFACTURING CO.

P. O. Box 98, Vernon Station, Los Angeles • 50 Church St., New York • St. Louis • Tulsa • *Mid-Continent and Eastern Distributor:* Frick-Reid Supply Corp. • *Rocky Mountain Distributor:* Great Northern Tool & Supply Co. • *Foreign Representatives:* "Cosmos" Soc. in Nume Colectiv, Bucharest, Roumania • *Direct Factory Representative,* Bucharest Roumania • Industrial Agencies, Ltd., San Fernando, Trinidad, British West Indies • *Factory Representative,* Maracaibo, Venezuela • Axelson Manufacturing Co., Buenos Aires, Argentina.



We still say, "There's no economical substitute for Axelson Products."

DEEP WELL PLUNGER PUMPS AND SUCKER RODS

material poured or run around it. Early coatings of this type were effective unless or until cracks permitted entry of fluids to the pipe, when frequently corrosion would be accelerated.

Pumping Equipment

Pipe-line stations were not complete without their accompanying boiler units, and the station man was a steam engineer first and an oil transportation expert second. Lines in the Gulf Coast and Mid-Continent areas would transplant Corliss-engined stations complete from eastern sites, often bringing the entire operating personnel with them. The big steam engines, direct-connected to the plunger pumps, gave little trouble in speed regulation, the big flywheel absorbing the fluctuating load imposed by the duplex pumps.

Diesels and other internal-combustion engines were just breaking into the pipe-line field 25 years ago, with some of the earlier units rivaling the massive steam engines in size and unwieldiness, and with flywheels which made two-story engine houses or outdoor installations obligatory.

The triplex pump, centrifugals, speed increasers and other modern pipe-line-station equipment were unknown then, and such chores as plunger and valve stem packing were part of the regular 12-hour stint.

Pipe-line-scraper runs, handled through traps which permitted uninterrupted line operation, were part of regular operating routine, with the scraper changing little save in the types of material found most serviceable in its component parts. Other than for the oil-resistant driving discs, today's go-devil would be readily recognized by any old-timer, as would the basic lay-out of the typical pumping station.

Storage

Tank farms, operating initially as earthen pits, open to the elements, had progressed to covered reservoirs, though little or no attention was directed to the prevention, or at least reduction, of evaporation losses. It was the unusual pipe-line-station operator who noted, much less wondered, why some tanks of a certain crude ran higher line pressures and lower deliveries than other tanks of the same crude under what appeared to be identical circumstances.

Equipment of tanks with vapor-proof hatches, floating roofs sealed means for obtaining gauges without liberating vapor stored in tanks above the fluid, and other methods for reducing the loss if high hydrocarbon fractions from the fluid being handled improved the quality of the fluid delivered through the line, and enabled pipe-line revenues to be stepped up through elimination of the loss formerly charged against it.

Closely following the end of the hand-power age, some two decades ago, the machine age began to enter into pipe-line contracting and construction. Pipe-laying machines superseded the big gang, the machine stabbing, screwing and furnishing its own back-up for handling screw pipe of all sizes. The ditching machine, at first competing with the pick-and-shovel gang in terrain where ditching was easiest, soon progressed to the point where it could match costs on hard going and even through matted swamp land.

Welding, already tried and found workable on a few gas lines, entered the crude oil pipe-line field when a 15-mile 8-inch line near Ramona, Oklahoma, was welded in late 1920, and began to undercut the pipe-laynig machine on costs. Availability of the welding torch on the job presented a means for obtaining intense, closely localized heat, and field bending eliminated the troublesome pile of shop bends and accompanying make-shift directional changes.

Standardization, initiated by the A.P.I. and national engineering societies and promoted by them in conjunction with oil-transportation companies, cut annually the amount of experimental work to be done before a pipe-line system would function to capacity. Such work made possible the specification of alternate equipment should that first selected not be available within the limited time for completion which characterized—and still marks—all pipe-line projects.

The present pipe line, moving crude oil and finished products across vast distances, operates so quietly that few outside its own branch of the industry accord it even passing notice. Yet today's pipeliners are piling up records of man-hours without accident or shut-down which would have appeared fantastic to the pipeliner of not so far back, whose creed taught every man for himself, and the survivors were those with the stamina, skill and luck to survive the grueling tasks and long hours considered normal before machines began to do the work at which men had been pitted.

The gradual infiltration of trained engineers and their application of technical principles and application of theoretical hydraulics to the problems of oil transportation throughout the entire pipe-line set-up may be characterized as the great advance in pipelining over the past quarter-century. Through understanding of the theories involved and their adaptation to pipe line construction and operation, has come the change, well within the economic and work-day life of many pipeliners, from the day of the handicraft with its vast army of immigrant, semi-skilled and trained personnel to the present highly mechanized, standardized unit with a few men, well trained and efficient as directors of applied power.

J. C. Truman Construction Company

PIPE LINE CONTRACTOR

★

IDENTIFIED WITH PIPE LINE INDUSTRY
FOR OVER 25 YEARS

★

General Office

220 North Main **El Dorado, Kansas**

Personal Experiences in

21 Years of Oil Reporting

Oil field writing is not always the humdrum routine of recording well depths, production averages, or engineering progress, says

GRADY TRIPLETT

who looks back over the past twenty years on the editorial staff of The Oil Weekly and recalls many of the more human incidents that supply romance to the story of oil.

FEW are the incidents that make a lasting impression, even in a span of twenty years or more of going about in the petroleum industry in the search of news. Most of the days are dull, for the routine of the job follows the routine of the industry, so many wells drilled, so much oil produced, so much profit made and so much reserves set up. The dramatic does not come out of such.

Good story material in oil is like good story material elsewhere. It must have one or more of these—elements of life, love and death. Neither of these can be found in well depths and statistics. Only when events disrupt the routine do facts become as rich in material as is the well of imagination, from which the fiction writer can draw. These occasions are rare, hence the few incidents that make for lasting impression.

No love interest in oil? This driller stood on the derrick floor of an Illinois well and gave orders for rigging up with all the authority and dominance of the toughest top sergeant of a seasoned army. Meanwhile he told of having come away from a more desirable Southwestern state under the impression that his stay away from home would be short.

"Now it looks like I'll be here a long time," he explained and there was a quiver in the voice that had been firm almost to defiance. Tears were streaming down his face by the time he finished with, "I'm bringing the wife and kids up next month and they're goin' to stay until this thing is drilled up."

That was a slice of life as was the restaurant scene a few days later. This oil-field worker entered and gave competent and authoritative attention to the woman, one of whose eyes was black and closed while the other was black and partly closed. She was properly seated and he ordered the meal. All of the conversation was not audible but this much was:

"I was workin' last night like I told you and I know where you were and there'll be no more of that."

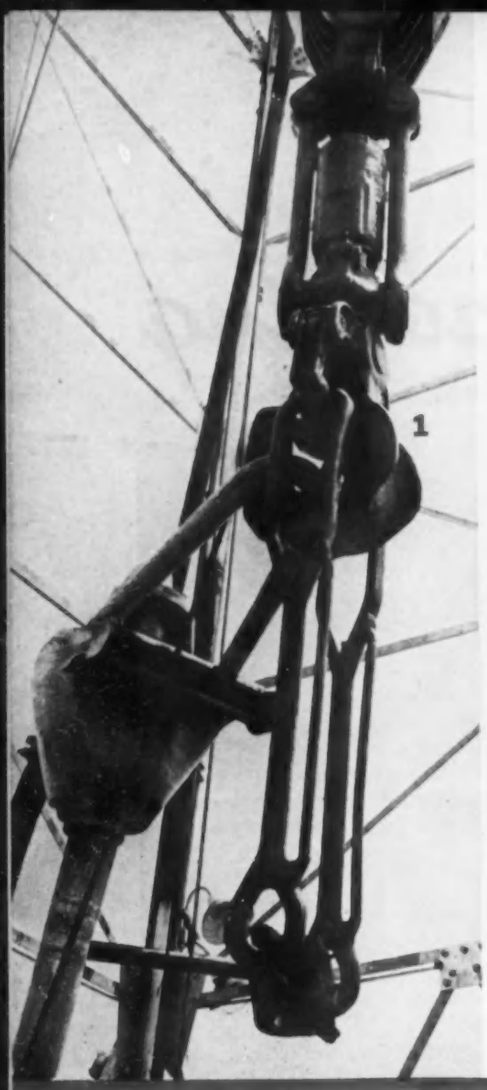
It is peculiar how some of these outcroppings of human interest are the dressing for some of the significant trends in oil-field development.

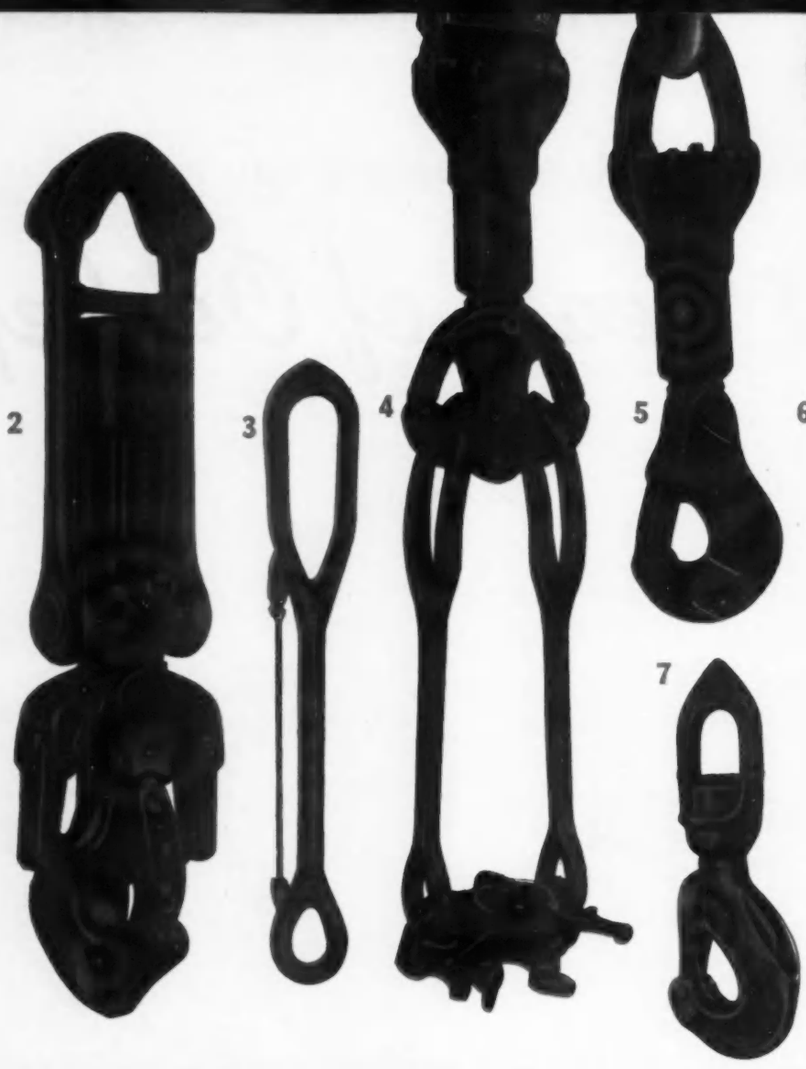
Back in 1922 came an assignment to report on the entry of the rotary rig in the Tonkawa field. Previously the rotary had by a circuitous route moved as far northward as the Southern Oklahoma fields, which became its northern boundary. But Tonkawa had some high-pressure gas sands, which played havoc to the extent that fishing jobs were more frequent than well completions.

Then two or three rotary rigs were moved in. Despite their success, their crews were as welcome as a cop in a negro crap game. There were clashes that were far from the tea party variety. Rotary and cable tool men had a few printable epithets for each other but they had hundreds of terms that can not be set down if a publication is to enjoy its privileges of the mails. Adherents of the two methods of drilling finally arrayed themselves into rival camps and the fighting went on while the wells went down.

It all passed with no more serious damage than black eyes, face wounds and scalp wounds.

More than that, however, it was a period of a few weeks during





★Quick Facts for your convenience

1. A BJ "300" Triplex Hook in the derrick. There are other sizes for 50, 100, and 150-ton loads.

2. This BJ "150" Triplex Drilling Hook shows the 3-hook design and the strong, safe "locking arms".

3. BJ Weldless Links now have adjustable wire line handles which provide a better grip and do not get bent in service.

4, 5 and 6 — See description of the new BJ DUPLEX Hook in black panel.

7. This BJ "30" Tubing Hook is for use in short derricks where overall length is vital. There are two larger sizes for 50-ton and 75-ton loads of tubing.

8. BJ Type G Elevators handle up to 200 ton loads of external upset drill pipe, without using lifting plugs.

9. The lighter Type LG Center Latch Elevator handles shorter strings of external upset drill pipe.

10. BJ Type A Elevators are built for long, hard service in handling collar type drill pipe—strong enough to "stand the gaff".

11. This Side Door (Type B) Elevator is safe for 150-ton loads of external upset drill pipe. The heavier Type BB carries 300-ton loads.

12 and 13 BJ Elliott Wire Line Core Drills are setting new standards for taking full length cores in all formations. Safe, simple and economical to use.

14. At last here is a Casing Spider which grips instantly, operates easily and rapidly, and can be removed by merely opening the door. A slip has been removed in view 15, to illustrate the sturdy, safe design.

16. BJ Surestop Tubing Catchers provide complete tubing protection for long strings. The Anchor (optional) prevents vertical movement of tubing which wears couplings and casing.

17. When a BJ Snapon Tubing Tong is thrown around the tubing it locks in place, then grips instantly without crushing.

18. BJ Rod Elevators have handy operating latches both front and rear. They hold rods securely without danger of kinking.

19, 20. BJ Rod Hooks have the exclusive "locking arm" which picks up the elevator bail and holds it safely. Sizes for 10-ton and 15-ton loads have ball-bearings; the 20-ton size has also enclosed springs to lift a stand of rods and prevent burring threads.

21. So inexpensive that no well can afford to be without it—simple and positive in operation—the BJ Shortype C Tubing Catcher. Can be equipped with Anchor if desired.

22. A rubber cushion absorbs the shock when you use a BJ Kelly Bushing, and the resultant, even feed smoothes up the kelly and makes it possible to maintain the desired weight on the bit.

23. Here's how the rubber cushion absorbs the shock. The low-cost, replaceable liners are faced with anti-friction material.

PETROLEUM EQUIPMENT SUPPLIERS ASSOCIATION MEMBER

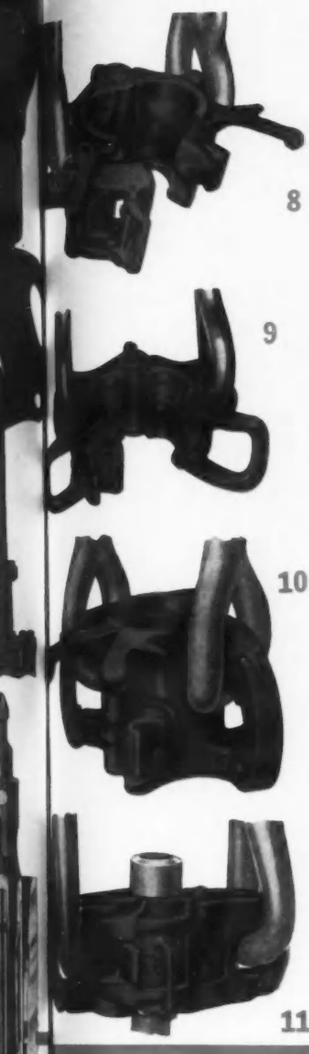
BJ DRILLING AND PRODUCTION TOOLS ★ *Refer to your Composite Catalog, or write for the BJ Catalog which contains complete details, illustrations and prices.*

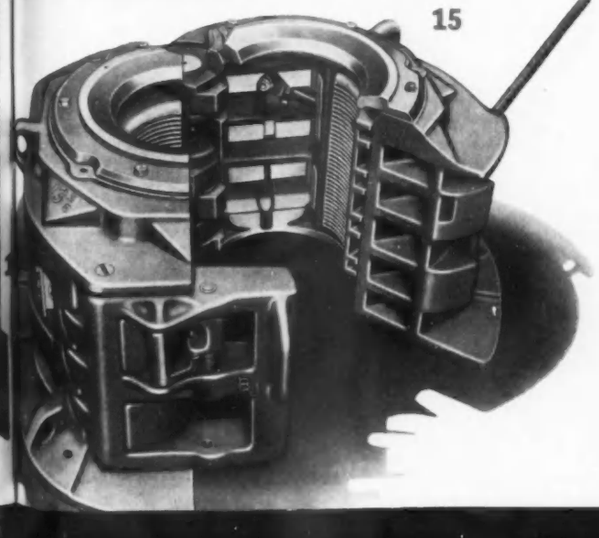
12

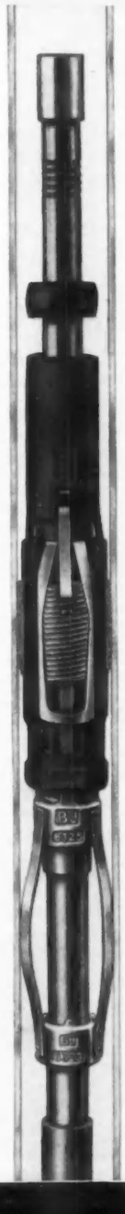
LET BJ TOOLS ASSIST IN YOUR PROGRESS FOR THE NEXT 25 YEARS

AS YOU COMMENCE the *next* Quarter Century of Progress, look over these modern BJ Oil Tools — all of them ready to meet tomorrow's problems of convenience, safety and economy. Others are now in various stages of planning, designing, building and field-testing to meet your need of a month or a year from now.

An example is the new BJ "50" DUPLEX HOOK, used in view 4 with BJ Weldless Links and a BJ Tubing Elevator. An enclosed relief spring has a 5-inch travel, and will lift a stand of tubing clear of the collar, thus preventing damage to threads and speeding up operations. . . . In view 5, by removing only one bolt, a single BJ "50" Hook is installed in place of the DUPLEX Hook. Either a bail for connection to the block becket, or an adapter for direct connection to the block (views 4 and 6) can be furnished as specified. . . . In view 6 the BJ "50" DUPLEX Hook holds the swivel bail for work-over or perforation washing operations. A straight pull is provided, but the bail is securely locked in safe against accidentally "jumping" the hook. Either side of the DUPLEX Hook provides full rated capacity when used for this purpose. A rod hook can be attached readily by a clevis through the lower hole. . . . Your supply store can get a BJ "50" DUPLEX Hook for you promptly.







DON'T OVERLOOK THE NEW TYPE B AND TYPE C TONGS ON THE FRONT COVER OF THIS MAGAZINE!

BYRON JACKSON CO.

LOS ANGELES
Houston — New York

which the drilling method of most of the Mid-Continent area shifted from one type to another. Manufacturers had to shift and enlarge their output. Some men had to learn another technique. Some were lost in the transition or went into other endeavors.

It has been my good fortune never to come upon death in the oil country. Twice, however, it has been so close at hand that life for the moment was of doubtful duration. One was a wild well; the other extinguishing the fire of burning clothes on a workman.

For 12 days Mary Sudik 1 in the Oklahoma City field poured out a stream of oil and gas and defied control. By April 6, 1930, the weather had turned warm and the area around the well gave constant evidence of its threat to life by the visible vapors that arose from the soaked soil. One spark and the answer could be written in the charred bodies of perhaps 100 men, some who came to work and some who came to watch.

Never during that Sunday was the word fire mentioned. Frequently, however, the onlookers paid high compliments to the ability of the crew. "That gang knows what it's doing," simply was another way of saying there would be no accident with fire as the consequence. Praise was given in hope and fear rather than in knowledge. That the crew did know what it was doing was made into the record of closing in one of the famous wells of the oil industry. Something that did not go into the record was that the well frayed more nerves than any other well within the history of the industry.

Going away on the wagon with part of the crew was a revelation. It was a tired crew but one not bent on rest. There was a determination to seek activity that would "change our luck." Somehow they gave the impression that sought mischief not for itself but as an assurance there would be no opportunity of thinking about the danger period, which they dared not mention.

Only recently in the Cotton Valley field one member of a pipe-line coating gang broke away from his post with one leg of his pants burning fiercely. How a fellow worker caught the victim with such rapidity is beyond understanding.

Then began a frantic fight that lasted perhaps 30 seconds. Finally the burning pants were stripped off and the victim was on his way to a hospital and recovery.

Although the consequence fell far short of the threat of that prolonged half minute, the whole incident is still a vivid picture. In memory it is still easy to hear the victim pleading:

"Pull 'em off, pull 'em off, pull 'em off."

Doubtless a few months or a few years hence some men will tell, even exaggerate, of the part they played in saving the life of a fellow worker. For the half hour that followed the incident there was no bragging and little conversation on the subject. A gang of men simply let work go for a spell and looked off into space.

When the report of gaining mastery over the Oklahoma City well was printed in THE OIL WEEKLY it bore this heading:

WILD MARY SUDIK UNDER CONTROL AFTER ELEVEN DAYS' EFFORT
By Grady Triplett.

After which the letters began to arrive. Their temper was of this line from one communication:

"My office girl wants to know who is this man Triplett."

Relief valve of the industry is its ability to grasp a humorous setting and play it to a fine ending. There are some choice stories out of its ramifications. For instance the late Joe Ardizzone, who operated at Ranger, spoke the Italian language and liked the opera. When in New York he went regularly to the Metropolitan, doubtless not mindful of the dress requirements of the lower floor.

One evening while two male singers were chanting their operatic hatred of each other, Ardizzone gave vent to uproarious peals of laughter. Cold and inquiring stares were turned upon the rude individual who could or would laugh at one of the touching scenes of opera.

It developed that one singer upon noticing a rent in his rival's costume, had, while keeping tune to the music, given these instructions in Italian:

"Keep your back to the drop; your pants are split."

Somehow the incidents worth remembering all had to do with men and not with men in their ordinary pursuits. That the incidents are few is due to the fact that exceptional circumstances or exceptional individuals are required. These are the spice that make the morsel edible. Physical things are the industry and statistics are the evidence. Because of this most of the days in oil reporting are dull days. Exceptional incidents are the relief that gives the industry life and color.

It does not seem to be a matter of great consequence whether the first well on the Banks of Oil Creek was 59½ feet or 159½ feet deep; whether it made 100, 200 or 300 barrels of oil. Of greater importance is the spirit of an individual, carved at the base of the Drake monument in the cemetery at Titusville:

"HE CONQUERED THE ROCK"

Given time, events adjust themselves in value. Burkburnett, which was the beginning of this chronicle, had its well total and its production peak, all of which can be found by searching the record. Of more consequence after twenty-one years is the fact that the office of THE OIL WEEKLY in Wichita Falls had no window but it did have a painting to resemble one and the artist added shade and curtains to give reality. The one room was shared with two other concerns.

Because of Burkburnett, Wichita Falls was laboring under the difficulties of taking care of a population at least twice as numerous as the physical assets of the city could accommodate in comfort. For the most they were men who were after oil and knew their business. Only a few were promoters, but they gained recognition to a greater extent than their numbers justified. Furthermore, all promoters bore the stigma of dishonesty. Neither was that true. Among them were men who honestly wanted oil and wealth. Their handicap was that they did not know how to gain either.

One of this class asked an opportunity to explain why his well was not making hole. He was lately of the legal profession and his dress and demeanor left no doubt that he should have remained with his profession. Among other things he said work would be resumed "after impediments had been removed from the hole."

A sympathetic stenographer followed into the hallway to explain, "They're fishing for the bit."

Had she taken advantage of a novice and explained that the fishing was for the boiler the story would have been written that way.

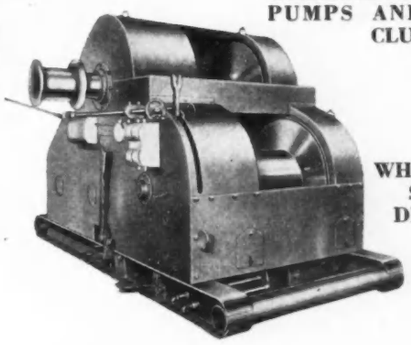
Perhaps that would not have

the Leader

REPUTATION, EXPERIENCE, EQUIPMENT

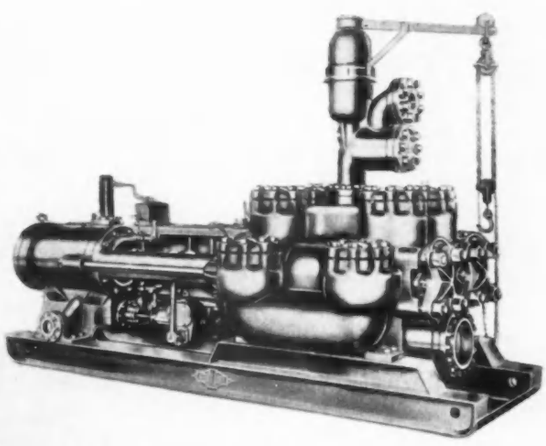
ABOVE: WHELAND-LUCEY 3-ENGINE DIESEL DRILLING OUTFIT WITH 2 WHELAND-LUCEY POWER PUMPS AND REVERSE CLUTCH

LEFT: LUCEY HI TENSILE STRENGTH OIL COUNTRY BOILER 150 H. P. 350 Lb. W. P.



WHELAND-LUCEY SLIM-HOLE DRAWWORKS

LUCEY has built a great variety of equipment for use with steam, gas, gasoline, Diesel or Diesel-electrical power operated either in separate units or combinations of units as shown in circle above right. Our Engineers can design the proper hook-up arrangement to provide the utmost in flexibility and performance. Write today for further information.



WHELAND-LUCEY DUPLEX STEAM SLUSH PUMP
H-20000-BA 16½" X 8" X 20"

WHELAND-LUCEY A-18000-A
27½" TRIPLE OIL BATH ROTARY

LUCEY

LUCEY EQUIPMENT

Bailing Lines
Boiler Insulating Casings
Cable Tool Drilling Lines
Casing Lines
Complete Drilling Rig Installations
Crown Blocks
Diesel Mechanical Hook-Ups
Diesel Electrical-Mechanical Hook-Ups
Drawworks
Drilling Engines
Drilling and Fishing Tools
Gas Burners
Lapwelded Steel Casing
Oil Bath Swivels
Oil Well Boilers
Oil Well Chains
Oil Well Tubing
Pipe Reconditioning Equipment
Power Slush Pumps
Pull Rods
Reverse Clutches
Rotaries
Rotary Drilling Lines
Rotary Drill Pipe
Seamless Steel Casing
Shale Separators
Steam Slush Pumps
Steel Derricks
Steel Tanks
Sucker Rods
Trailers
Traveling Blocks
Turbo Generators
Wire Rope
Wrought Iron Pipe

CORPORATION

NEW YORK, N. Y.

Calle Defensa 320 ..... Buenos Aires, Argentina
615 8th Ave., West ..... Calgary, Canada

been inconsistent, for it was at Burkburnett that a boiler was stolen while the steam was up. What if the man who lost it and the men who took it never have verified the story. It was known to scores and over the years has come to be known to hundreds and thousands. Out of such came the truism, "there'll never be another boom like Burk."

Burkburnett property was at stake when a deal reached the stage of money assurance with the hour long past midnight. Accordingly the would-be borrowers hied themselves to the home of a banker whose sleep was so sound that he did not respond to the ringing of the door bell. Finally after a rock bombardment of his home he appeared at an upstairs window whereupon the dickering for a loan began with the result that he doubtless is the only banker ever to grant a loan for $100,000 while he shivered in a night shirt and his borrowers listed their securities from the front gate.

The office and yard forces of a supply house took advantage of each Saturday night for a session of dice rolling. One night police raided the game with the result that fines took all the money. Next week highjackers appeared and took all the money without benefit of court action. Thereafter the police and the law violators took turns at killing the game by taking its funds out of circulation.

Finally one disgruntled victim wrote a letter to the local editor. He wanted to know why the upholders of the law and the violators of the law could not arrange to visit the dice game in one evening. His suggestion brought no favorable response but it was quoted widely in the press.

Money served useful purposes other than fixing a value in the exchange of goods and service. Experienced travelers, especially if they anticipated being out in the field at night, carried a few pieces of folding money as a precaution against beatings. The highjackers seemed to have a professional rule to the effect that empty pockets were justification for beating the unaccommodating victim.

Shortly Wichita Falls grew up to its obligations. Its fine homes, hotels and office buildings are evidence that the hectic period provided more than the unusual events which gave it the color that broke the monotony of recording well depths and daily output. By such it was ready for the several plays that have come to make North Texas a vital part of the oil industry.

How different it all was when the deeper sands at K-M-A were discovered. Proration held sway then and a boom was out of the question.

Suddenly salt water appeared in some wells in the Homer field with the result that THE OIL WEEKLY became publication non grata in some circles in Shreveport. In that period drilling progress, completions and their initial output and average daily field production were the major content of an oil paper. Providing all that without access to scout reports was impossible. A closed door to a reporter requires finding another door. Fortunately the oil industry is rarely of one mind. What is serious in some circles is comical in others. Because of this reports were available, although never of an assurance that was comforting.

As for the effect of salt water at Homer, the records show the field has produced more oil per acre than any other field in North Louisiana.

That period gave the first opportunity of observing the way of the politician with the oil industry. Louisiana had elected a new governor, who proposed a production tax. The protest resulted in a conference at Baton Rouge, where the legal element of oil made out a case that left no doubt of the consequence of the tax. It would bring bankruptcy. The governor-elect listened then closed the conference by suggesting, "you men write the bill." In due time the state had its new tax source.

Since then speech making has been voluminous, for the industry is given to conferences, conventions and going to the state houses. Of the hundreds of speeches heard over this twenty-one-year stretch, only one made an impression. After listening for most of two days while men of government and men of the industry wrangled over the wisdom of an Interstate Oil Compact, B. B. Brooks, former governor of Wyoming and an oil producer there, gave the conference at Colorado Springs in June 1929 the benefit of his experience in conservation. He had had a part in the conservation of coal with the result that oil and gas had replaced it as fuel. Timber, likewise, had been saved to the end that other materials had replaced it for building.

Although the Seminole fields already had given the industry more oil than it could digest, the theme of the conference at Colorado Springs was the saving of oil against a day of shortage. Conservation was proposed as little more than denial. About this the former Wyoming governor made these observations:

"The inventive genius of America is not to remain idle, whether we use our oil or save it for the future.

"Far stranger things have happened than the possibility that we'll not be concerned about oil 25 years from now.

"Let's not be whipped by the fear that our automobiles and our airplanes face a day of stillness when our oil is gone. The inventive genius of this country will keep us moving and the oil that is under our lands will bring us prosperity now."

The first proposal of an interstate compact for oil came at Colorado Springs. The industry through its leaders and the states through delegates tore the proposition to bits and left some men from Washington to pick up the pieces. A fair estimate was that some of the pieces never would be found.

Evidently 1929 was the end of an era.

Previously an auction of Osage leases at Pawhuska demanded a special train out of Tulsa. Frequently the private cars of eastern executives were parked in Pawhuska for the sale. The local contingent of oil writers met special assignment men from the Sunday supplements of metropolitan dailies.

It was a treat to watch Colonel E. Walters, the Skedee auctioneer as he leveled the index finger of one hand and then the other at rival bidding groups while he chanted, "One hundred thousand, two hundred thousand, three hundred thousand, four hundred thousand." Top bonus for an Osage lease was $1,600,000 for 160 acres in the Burbank field.

Now an Osage auction demands no special train. Even if the area had another Burbank, buyers would hesitate long short of the million six hundred thousand dollars, top price for the privilege of drilling 16 oil wells and giving a sixth royalty so long as the wells flowed. Proration now extends the

. . . . HURRY BY!

Twenty-five years ago . . . 1916. World War 1 is costing England $28,500,000 a day. . . . 3,500,000 workers in Great Britain, including 666,000 women, are employed in war industries. . . . Pershing leads a military expedition into Mexico to punish Villa and his bandit followers for bloody border raids. . . . We purchase the Virgin Islands from Denmark for $25,000,000. . . . Wilson appeals for terms of peace, but we are even now on the verge of war with Germany.

Twenty-five years ago . . . 1916. The oil industry takes up its belt a notch, dresses its fish tail bits, checks over its amazing assortment of fishing tools and prepares to speed up production for defense. Mules and oxen struggle patiently through hub-deep mud in the boom towns, drawing wagons piled high with supplies and equipment from Frick-Reid stores. Field men crank up model T Fords, climb in over the sides and rattle away to awe-some rigs that nevertheless made hole.

Twenty-five years later . . . 1941. The model T Fords are long since obsolete. The stubborn old rigs are abandoned and forgotten. General mud is in full retreat before concrete and macadam highways. Only Frick-Reid stores remain, growing year by year in number and the essential nature of their service to an industry once more intent on national defense in a war-weary world.

FRICK-REID *Supply Corporation*

"...here's MY warehouse!"

TULSA, OKLAHOMA

pay-out period over too many years to warrant such bonus totals.

Least perturbed were the Indians. They were the world's richest people, the result of being moved about at the behest of white men until they had come into ownership of spot of rich liquid minerals. They did not even seen to enjoy the irony of the chain of events whereby they had given up one reservation after another until a Secretary of the Interior had in his annual report bemoaned their fate. Pay day came four times a year and a watchful agency of government attended to accounting and distribution. The peak year in returns brought $13,500 to each headright.

No wonder new automobiles came frequently to the Osage hills. Wisest of the purchasers doubtless was the brave who bought a hearse, hired a chauffeur and reclined while he rode.

Few industries can match oil in the bringing of sudden wealth and few can match the reactions of its acceptance. Along with that is the attitude of those who observe the change or lack of change that comes with sudden wealth.

One of the extremes is represented in the threadbare story of the farmer who comes home with his first royalty check and sits down to talk over its disposition with his wife. Amid the evidence of years of privation, the husband finally asks:

"What do you think we should buy first?"

After long deliberation comes this reply:

"Well, I'd like to have a new handle for the axe."

Somehow the neighborhood looks with disdain on the man or woman who is thrifty in the midst of plenty. The common attitude in the light of thrift is that there should be riotous spending instead.

On the other extreme is the public attitude toward the man who comes into sudden oil wealth, moves to a large town, takes to reckless spending and in time comes back with less money and more experience. To his neighbors he likewise is foolish.

Only recently the inmate of an asylum died while harboring the delusion that he was under constant threat of being robbed of his monetary wealth. Three times in a brief career he had been rated in the half-million-dollar class. Each time he had dissipated his wealth at a rate almost equal to its accumulation. He boasted of paying a barber $20 for coming to a hotel room to render the services of shave, haircut and shampoo. Even the barber spoke lightly of this recklessness with money.

Perhaps those who consider a new axe handle a major decision are the wiser. At least, it takes more than money to disrupt them.

After 1929 the industry turned to the state house for solution of its problems. Out of that came proration as a policy rather than an expediency. Somehow the whole program has given the impression that the industry is under the delusion that it can get benefits of state control without getting the handicaps of state control. Proration hearings made news for a spell; then settled into a routine. There was and is something pathetic in listening to men whose objective is profit pleading with men whose objective is being elected to office. Besides, politicians are not among my heroes.

Prior to 1929 the oil industry wanted no form of control by government; it frowned on unitiza-

EDWIN M. JONES

★

producer of

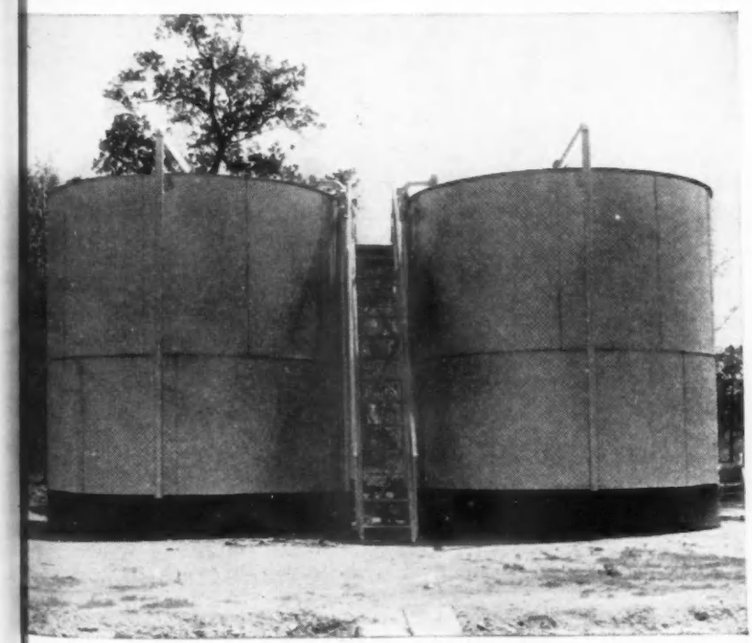
CRUDE OIL

★

FROST NATIONAL BANK BLDG.

SAN ANTONIO, TEXAS

BUTLER BOLTED TANKS
RUNWAYS AND STAIRWAYS



Specify BUTLER As Your Supplier!

Under tightening priority control it is becoming more and more important that the user and the manufacturer plan together as far in advance as possible. Especially is this true of oil field tanks—which, when needed, are needed quickly.

In the production of several million dollars worth of products for defense under Government Contract, the Butler organization, from its Washington staff on through the three Butler factories, has become experienced in the difficult job of manufacturing under priority control.

To users of oil field tanks, runways, stairways and steel buildings, we extend an invitation to "specify Butler as your supplier." In so far as we may, we will carry stocks at strategic points. However, the securing of raw materials may become more and more a proposition of presenting users' orders well in advance of the desired delivery date.

Consideration of your requirements will be welcomed by us and may well prove to be a wise measure of future protection for you.

For prompt handling address all inquiries to

1246 EASTERN AVE.
KANSAS CITY, MO.

946 SIXTH AVE., S.E.
MINNEAPOLIS, MINN.

BUTLER MANUFACTURING COMPANY

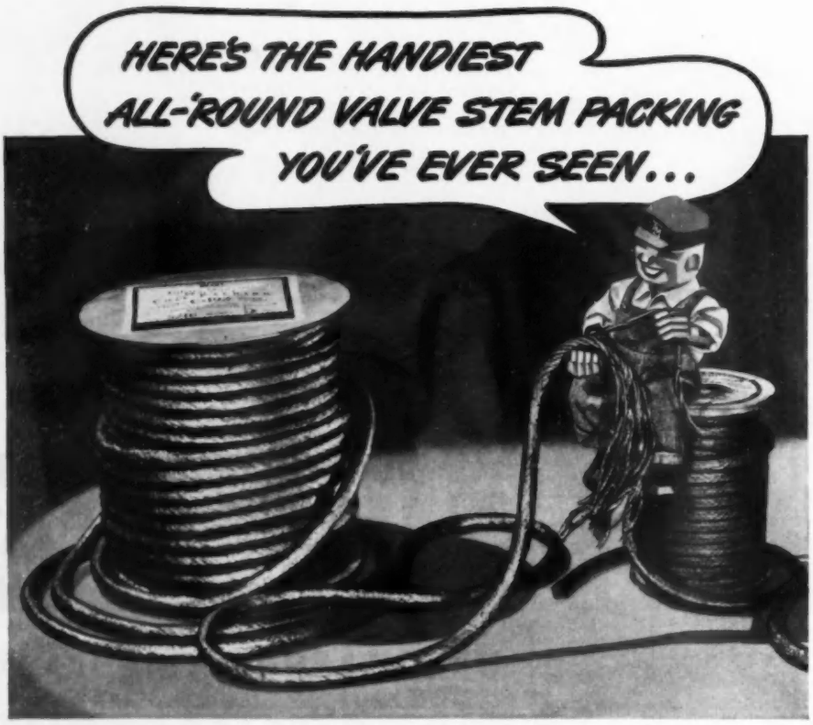
Factories: KANSAS CITY, MO. GALESBURG, ILL. MINNEAPOLIS, MINN.

Sales Offices: Kansas City, Minneapolis, Washington, New York, Chicago, Cleveland, Tulsa, Shreveport, Houston, Denver

tion; it was rabid as to federal control and an Inter-State Oil Compact was branded as such. Now all of these are facts and the industry had a part in making the changes.

All the while, however, one met and still meets many interesting people in oil.

. . . There was William H. Gray, who could turn any occasion into opportunity of bemoaning the fate of "those little wells." Once upon a time there was a meeting of producers, who organized an association with Gray as president. It never had another meeting with the result that Bill Gray thereafter spoke with the authority of organization behind him. Before his death he retired to an Arkansas farm, from which he still sent forth statements and came forth to make speeches that were pleadings to protect the stripper wells. . . . T. B. Slick sat cross legged in his chair after the fashion of a tailor at work. No cigar could long withstand the punishment he gave in lieu of smoking. When a conference ran long and the cigar supply ran out, he would resort to cigarettes, much to the discomfort of those nearby as well as unfavorable change in his appearance. Oil was the abiding constant with Slick. Once an eastern editor sought permission to put the career of the restless wildcatter into print as a Sunday feature. "Not interested in publicity," was the cryptic reply. An undaunted staff writer came to Tulsa anyhow and left without notes. . . . Henry McGraw reached his office by 7 o'clock each morning. Seldom did the 5 o'clock hour hand note his departure. He was a stickler for details. It was a privilege to be called in when he had finished a report on some meeting or conference. McGraw wanted questioning; not approval. He never belittled the visit even by suggesting that it was confidential. No wonder men and women within the Gulf organization and without liked Henry McGraw. . . . M. M. Doan was bent on a different line. Somehow he gave the impression that the oil industry was a vehicle for enjoying life. Even a late train brought no fretting. The hours passed lightly while he spun yarns that came out of oil-field development from the Gulf Coast to California and to the Mid-Continent. His patience made him a valuable third party when buyer and seller were far apart on terms and the amount in a deal. . . . Surely the paths of Doan and William H. McFadden crossed in the Oklahoma scene. What a privilege it would have been to listen in while they recounted experiences. McFadden was convalescing in a Hot Springs hospital when some ambitious youngsters came over from Ponca City in quest of capital. Finally he agreed to finance a well with the money to be turned over the next day. That night the visitors returned and renewed the plea on the basis of getting the money pronto. He learned later that the second visit was prompted by the fear that he would be dead before morning. More than one well was drilled before oil came to the Ponca field but the conditions under which the location was staked must remain untold at McFadden's request. . . . When the early efforts at proration were being buffeted around the courts the office of James H. Veasey was a popular spot with those who faced the necessity of translating legal phrases into words for the layman. If he ever was vexed because of these calls upon his time, he had



J-M MOGUL—accepted as the standard valve stem packing by plant operators all over the country

Exceptionally adaptable, Mogul may be used as a general utility packing for a wide variety of services. Soft and pliable to begin with, it stays that way in service—does not "wilt" under the sustained heat of stuffing boxes. Because Twisted Mogul, Style No. C-193, can be untwisted to make any desired thickness, one size can meet the needs of many different-sized boxes. Mogul is also furnished braided, both round (No. C-222) and square (No. C-223).

If you want to cut RE-packing costs, it will pay you to try Mogul and other packings in the complete J-M line. For full details ask for the new J-M Packing Catalog PK-12A. Johns-Manville, 22 East 40th Street, New York, N. Y.

JM PRODUCTS

JOHNS-MANVILLE PACKINGS & GASKETS

THERE'S A DISTRIBUTOR NEAR YOU

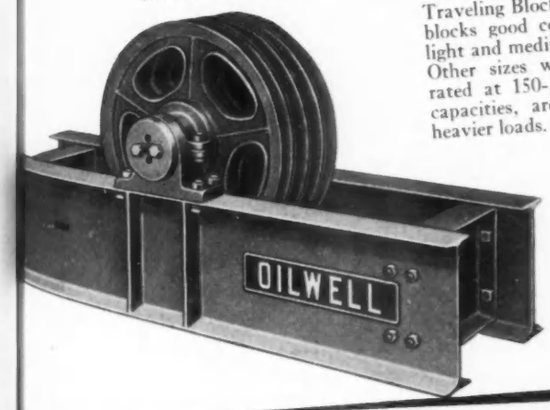
A complete Power Rig

HERE is a complete power rig for fast, economical drilling. It is as modern as tomorrow, yet thoroughly proved in service. Not just the hoist, but all major items are made by one experienced manufacturer.

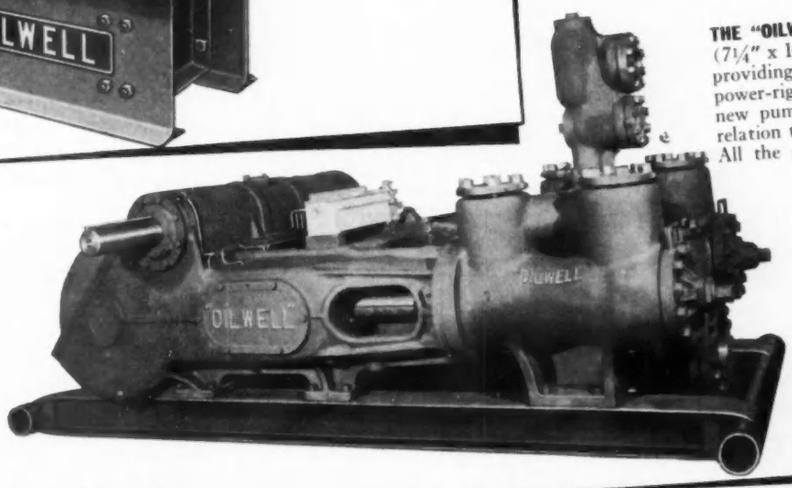
Each item is a dependable performer in itself. Together they make up an efficient, smooth-running team that does a good job at low overall cost. So, whether you need a complete power rig or only a few items to improve a rig now in service, be sure to investigate this modern "Oilwell" equipment.

FREE-RUNNING and well-balanced, the *"Oilwell" 60-inch Streamline Traveling Block* is designed for safe high-speed operation with any loads up to its conservatively rated capacity of 100 tons. It is furnished with either three or four sheaves. Bearings and sheaves are interchangeable with those of the "Oilwell" No. 100 Crown Block. The three-sheave block is sometimes furnished direct-connected to a drilling hook by means of the lower pin, which normally supports the clevis. Larger "Oilwell" Traveling Blocks with bigger sheaves are rated at 150-, 200-, and 300-ton capacities.

THE "OILWELL" No. 60 SWIVEL is the smallest of a complete line. In general construction it is patterned after the larger "Oilwell" Swivels which were used on the two deepest wells ever drilled. The No. 60 includes such modern time- and dollar-saving refinements as grease-lubricated housing oil-seals, grease-lubricated pressure-sealing non-adjustable wash-pipe packing, long-radius heat-treated gooseneck, integral rubber-padded bail rest with rubber-padded ears. As in all modern "Oilwell" Swivels, the wash-pipe is armored inside and out with abrasion-resisting and long-wearing DI-HARD. Rated drilling depths with 4½"—18-lb. drill pipe are: 5700 feet at 100 r.p.m.; 4700 feet at 200 r.p.m.; and 3800 feet at 400 r.p.m. Dead load capacity is 100 tons. A 4½-inch A.P.I. tool joint is integral with the heat-treated forged-steel swivel body.



THE "OILWELL" No. 100 CROWN BLOCK is a 4-sheave roller-bearing block of the center-pin type, symmetrically designed for a load capacity of 100 tons. Bearings and 34-inch diameter manganese-steel sheaves (1-in. or 1⅛-in.) are interchangeable with those of the "Oilwell" 60-inch Streamline Traveling Block, making these two blocks good companion units for light and medium duty power rigs. Other sizes with larger sheaves, rated at 150-, 200-, and 300-ton capacities, are available for the heavier loads.



THE "OILWELL" No. 14P-HD POWER SLUSH PUMP (7¼" x 14") is one of a complete line of six sizes, providing an efficient pump for every class of power-rig service. The No. 14P-HD is a relatively new pump—extremely compact and portable in relation to its high volume-and-pressure capacity. All the pumps of this model already in service are establishing enviable records for trouble-free performance.

Hydrostatic discharge test pressure is 4,000 lbs. per sq. in., and maximum working pressure is 2500 lbs. per sq. in. Operating with full-size liners at its recommended maximum speed of 60 r.p.m., rated working pressure is 765 lbs. per sq. in. and theoretical displacement is 570 g.p.m. The recommended maximum input is 300 brake horsepower at 60 r.p.m. pump speed.

OIL WELL SUPPLY COMPANY

EXECUTIVE OFFICES—DALLAS, TEXAS
EXPORT DIVISION OFFICE—
30 ROCKEFELLER PLAZA, NEW YORK CITY

Branch Stores Serving All Oil Fields
United States Steel Corporation Subsidiary

DIVISION OFFICES
OIL CITY, PENNA. DALLAS, TEXAS
LOS ANGELES, CALIF.

a convincing way of concealing it. He had time for many things. The array of books which gained the classification of "the finest private library in Oklahoma" is now in the Maryland home to which Judge Veasey retired to keep on working. His exploration into the career of Abraham Lincoln is thorough and fascinating as several of us learned one afternoon shortly after the motion picture "Shark Island" was released. . . . There are others: J. Edgar Pew, Wallace E. Pratt, W. G. Skelly, Dana H. Kelsey, Roy B. Jones. Any effort to complete the list of those who have been helpful but never patronizing would run into scores of names.

That attitude extends beyond the offices of the oil industry. It was in Breckenridge that a man, upon being asked the location of his office, replied, "you don't find oil in offices."

Neither is all the news found in offices. There was the Oklahoma pumper whose lease home yielded to the ravages of time and among other handicaps came to be a refuge for rats, which burrowed into the ground beneath it. His ingenuity led to a plan of mass asphyxiation. The space between walls and ground was chinked with fair tightness and the natural gas supply piped in for the kill. The scheme worked well until an explosion wrecked the building and contents. He had forgotten the fire under the water heater. Or did he? The incident came to light in the efforts of a district superintendent to get approval on a new house of modern construction.

Whether or not that scheme had such far reaching design, it is true that the oil-field worker has ingenuity and a spirit of helpfulness that can not be surpassed in any other industry. It is a comfort to learn from statistics that the oil-field worker holds a high place in the wage scale of the nation. They are masters at designing and making devices which lift the load from the human back. It all saves time in making hole.

The man who travels the oil fields frequently gets stuck in the mud. The oil field worker never fails to throw out the necessary tow line. Never can he be paid for the rescue. More frequently the information seeker gets figuratively stuck in the mud. Lack of knowledge is another handicap the oil field worker as quickly and as readily overcomes by explanation and illustration.

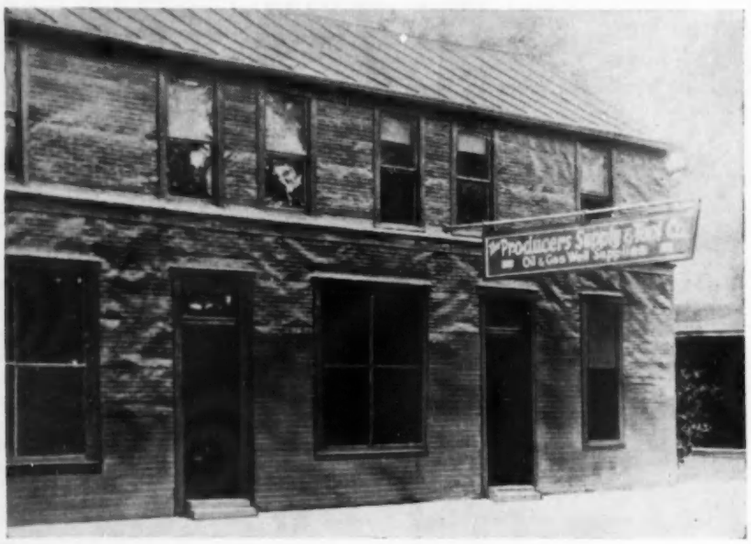
All too frequently names are not remembered from these incidents. This is an excellent opportunity to express general appreciation for courtesies that abound on the derrick floor and the dog house. Whether men of this stripe flock to the industry or the industry moulds men into that attitude is as involved as striving for the answer of the hen or the egg being first.

It is regretable that negligence has left it impractible to go back and learn the outcome of situations which promised to have as interesting conclusions as the dramatics that existed in some of these meetings where names were not learned.

There was the former drilling contractor, turned filling station owner in the Kansas town near which he came upon disaster. As a contractor he acquired the emblem so often worn as evidence of the success—a large diamond ring.

One night his car was forced into a ditch and a pistol shot tore through his face and neck. While

OUR STORES 1916 · MARIETTA, OHIO



OUR STORES 1941

MARIETTA, OHIO ST. MARYS, W. VA.

IN TEXAS

GRAHAM OLNEY WICHITA FALLS KAMAY HOUSTON

CORPUS CHRISTI TURNERTOWN ALLRED

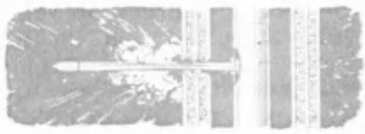
The Producers Supply & Tool Co.

Oil & Gas Well Supplies

FORT WORTH, TEXAS

THESE LANE-WELLS SERVICES AND PRODUCTS MEAN—*Lower cost completion and —Better well control*

Lane-Wells Gun Perforating—Lane-Wells Gun Perforator gives you *Selective Completion.* Drill and cement casing through the lowest producing sand. Gun Perforate the casing at the lowest sand and after production of this sand is exhausted perforate the next higher sand and continue to produce the well. *Selective Completion* makes possible the greatest ultimate production at the lowest per barrel cost.



Plug Back Operations can open to profitable production secondary sands cemented off when the hole was drilled. Gun Perforation alone or in conjunction with Radioactivity Well Logging makes it possible to locate these producing horizons and open them for production.

Positive Control of Gas/Oil Ratio to assure efficient production and prevent waste is made possible by Gun Perforating. These are just a few of the many Gun Perforator Applications that will enable you to control your well against almost any eventualities.

Ask the Lane-Wells Engineer how you can apply Gun Perforating profitably.

Lane-Wells Electrolog—Lane-Wells developed this improved method of determining the electrical characteristics of formations surrounding uncased bore hole to provide the finer definition necessary to locate accurately very thin producing sands. The sharp detail, speed, accuracy, economy, and safety of this better service are "reasons why" operators in the Gulf Coast, Mid-Continent and California Fields have made Lane-Wells Electrolog the standard of comparison for well records.

Ask the Lane-Wells Engineer to show you why Electrolog gives you more in electrical logging.

●

Lane-Wells Radioactivity Well Logging—Lane-Wells Radioactivity Well Logging produces accurate records of the lithology in open hole or *through casing.* This service locates possible oil

sands in old wells where accurate sample data and electrical logs are lacking. Results obtained since instituting this new service have clearly demonstrated the value and reliability of this latest contribution to the science of finding and producing oil.

Ask the Lane-Wells Engineer to explain the profitable applications of Radioactivity Well Logging.

Lane-Wells Quinta-Seal and Olympic Packers and Liner Hangers—Lane-Wells builds Packers and Liner Hangers to meet successfully every condition requiring the use of these specialized tools. The applications of Packers and Liner Hangers to production problems will become increasingly important as oil well tubular goods become more difficult to obtain. A single tool that may save a string of pipe can make the difference between a producing well and a shut-down.

Ask the Lane-Wells Engineer about uses for Lane-Wells Packers and Liner Hangers.

Lane-Wells Drillable Bridging Plugs—Lane-Wells Drillable Bridging Plugs give you an economical, positive and quick method of placing a drillable bridge in either a permanent or temporary installation. In most cases they provide the fastest and most economical method of plugging back and testing a well.

Ask the Lane-Wells Engineer about the economy of using Lane-Wells Drillable Bridging Plugs while Gun Perforating.

Lane-Wells Research Engineering—Lane-Wells Engineering Research Department has been working since the Company's formation in 1932 developing improvements of Lane-Wells Services and Products to increase their usefulness for oil well operators. With a backlog of experience gained from over 38,000 successful Gun Perforating jobs done under almost every conceivable kind of operating condition, experience gained from surveying more than 20,000,000 feet of oil wells, and experience gained from hundreds of Electrolog jobs, Lane-Wells Research Engineers are constantly searching for methods to increase well production and cut production costs.

Ask the Lane-Wells Engineer how Research has improved Technical Oil Field Services for you.

Lane-Wells Company believes that the American Petroleum Industry is a vital factor in the building and maintaining of our National Defense. The resources of Lane-Wells Company are at the command of the American Petroleum Industry because any contribution to the advancement of the Industry is an investment in our national welfare.

T O M O R R O W ' S T O O L S — T O D A Y !

LANE-WELLS Everywhere

the ring was being removed he was cursed and kicked by one of the pair and left bleeding profusely. By chance he was taken to a hospital in time to save his life. Recovery left him broken in health and fortune.

"I'd know his voice," he explained. "That's the reason I'm here in this service station. He'll come along someday and I'll recognize him by his voice."

It was shortly after the question of recognizing a man only by his voice had become a question during the trial of Hauptmann for the kidnapping of the Lindbergh child.

"You can do it," this former contractor continued, "I'd know that rat if I ever heard his voice again and if I ever do, he'll have a scar worse than the one I have."

Somehow it is impossible to resist the hope that the man did not wait and operate a service station in vain.

There was the little boy of perhaps four years, who had eyes as blue as ever dazzled under black eyebrows. He played about an Illinois honky tonk of doubtful repute.

"I'm going home as soon as my daddy comes back," came frequently from his serious lips. Fortunately he was too young to realize that a gathering in a little church a week earlier had been funeral services for his father, victim of a highway accident.

Or the surly workman who had demanded his pay, bought a bottle of liquor and sought a ride into town. Among other things he became troublesome before getting to town. He was through digging ditches for ungrateful contractors.

"Work a man to death and pay nothin'," he complained, "What chance has a man got anyway?"

It so happened that the man who wrote the pay check was himself digging ditches two years back.

There was the wife of a driller who was selected to assemble a crew and a rig for foreign service. He went to the supply center, after which he planned to meet his wife in New York. Meanwhile she returned to their former home to collect rent, which was long in arrears.

The renting family was long on blank checks and short on cash. A worthless check was promptly given and the affability resulted in an invitation to return in the evening for a neighborhood poker game. The result was that the worthless check was lost as well as all cash.

The next morning she was seeking a loan equal to her cash losses so she could meet her husband as planned.

Somehow it gets in the blood. Men who were drilling in Illinois at the turn of the century were back there in 1937, after following the rigs for 20 years in Kansas, Oklahoma and Texas. Likewise men who gave up leases in Illinois at the turn of the century returned for the same leases 20 years later. The persistency with which men walk over oil in search for oil leaves no doubt that oil is where you find it and that the science of exploration has not gone its limit.

For two decades there was civic envy in Oklahoma City which looked at Tulsa which the industry built and maintained to its liking. Then it was discovered that part of the Oklahoma capitol had been built over part of one of the world's great oil fields.

Two men once dissolved a partnership in geology because of heated arguments that came up

See this GUARANTEE
ON SKELLY
Fortified TAGOLENE
MOTOR OIL
•Fortified to insure cleaner engines.
•Fortified to keep pistons and rings free-acting.
•Fortified to minimize engine wear.
•Fortified to protect bearings.
Use Fortified Tagolene Motor Oil. Give it what you think is a fair trial. You are the sole judge. If it does not provide perfect lubrication and satisfy you in every way, take your purchase receipt to our station or distributor where you made the purchase. Your money will be cheerfully refunded.
SKELLY OIL COMPANY
W. S. Skelly
PRESIDENT
SKELLY
30¢ QUART
Skelly Fortified Gasolines
Skelly's two new gasolines . . . Fortified and Fortified Premium are Fortified to give you FAST STARTING . . . LONG MILEAGE . . . BRILLIANT, QUIET PERFORMANCE . . . ADVANCED MOTOR ENERGY.
Try it . . . you'll "FEEL" the difference!
FORTIFIED SKELLY GASOLINE
FORTIFIED SKELLY PREMIUM
SKELLY OIL COMPANY
TULSA, OKLA. KANSAS CITY, MO. EL DORADO, KANS.

IT WAS "MULE POWER" WHEN WE STARTED

Our Story of 30 Years of Progress in Oil!

Yes, 30 years ago we opened for business, in Port Arthur, Texas, making available our chosen line of equipment to the oil trade. Mule powered, or "one-lung" engine powered, it was the best the inventive minds of the times had to offer. It got the job done . . . as jobs were done in those days.

We are proud to have kept pace with the remarkable strides of so great an industry during these 30 years. The 1911 vs. 1941 rotaries are typical of the advancement in the equipment we represent. The lapweld pipe of 1911 vs. the Republic Electric Weld casing of today would depict equally as much progress.

We've made progress in service, too, thanks to the faithful patronage that has justified our expansion from our original store to the 38 stores and offices now serving all active fields in eight Gulf Coast, Middle West and Mid-Continent states.

REPUBLIC STORES

El Dorado, Arkansas; McLeansboro and Salem, Illinois; Griffin, Indiana; Ellinwood and Russell, Kansas; Lisbon, New Iberia, Rodessa, Shreveport and Ville Platte, Louisiana; Hobbs, New Mexico; Oklahoma City, Seminole and Tulsa, Oklahoma; Alice, Big Spring, Borger, Bruni, Corpus Christi, Electra, *Fort Worth, Freer, Houston, Jefferson, Kilgore, Monahans, Nocona, Odessa, Olney, Pampa, Primrose, *San Antonio, Sullivan City, Sundown, Talco, Victoria, and Wichita Falls, Texas.

*Office only.

Republic Supply Company

GENERAL OFFICES: HOUSTON, TEXAS

KEEP A "WHIP HAND" OVER PRODUCTION WITH R/M PACKINGS

In a nation whose factories are roaring night and day, pounding out defense production, the job of keeping water, gas, oil, steam, and corrosive chemicals under control is ticklish business. Never before has so much depended on R/M packings. Ceaseless hours, higher speeds, increased pressures, and greater strains try their strength and test their endurance. Fluids are kept under control! Machines keep going! Repackings are less frequent! Attention is reduced to a minimum! Because R/M packings *can* handle the emergency—*are* handling it!

40 years of specialization have prepared R/M packings for the present speed-up. The Raybestos-Manhattan line has but *one* sturdy packing—the *right* packing—for every job.

R/M packings are available through local outlets. They're ready to "handle the situation" in your plant. Call your jobber or write us today for your own free copy of the condensed, complete, cross-indexed R/M catalog.

INDUSTRIAL SALES DIVISION

RAYBESTOS-MANHATTAN, INC.

Makers of Packings for Every Industrial Use

BRIDGEPORT, CONN. MANHEIM, PA. NORTH CHARLESTON, S. C. PASSAIC, N. J.

over the proposition of a fault being a trap for oil. Later the one who had no faith in a fault was responsible for discovery of an outstanding fault field. His former partner still insists that the fault was mapped under the impression that it was an anticline.

No wonder that as men learn more they hesitate to fix a date for the exhaustion of oil reserves. East Texas was fantastic until development made it reasonable.

There is a temptation to dismiss East Texas with an admission that it is too big to comprehend. It is discouraging to set up a camera for a shot of a well-head assembly and then discover that the picture had been made only that morning.

But there is no dismissing an instance of drilling 21 wells while the boiler battery remained in one location. More would have been drilled had not one boiler needed repair, which gave opportunity for shifting across the road and thus shortening up on steam lines as the drilling campaign continued. Close spacing was an art in East Texas, five wells fifty-one one-hundredths of an acre in one instance. That was the count four years ago; perhaps the lease has more wells by now.

East Texas changed the living habits of people. There drillers ceased to be wanderers and settled down in one field long enough to see a youngster through grade and high school in one locality. And what school plants!

Its bottom-hole pressure is watched with anxiety akin to that of a physician over the temperature of a fever patient. If the words that have gone into controlling it, praising it and condemning it could be converted into energy and put to pressure maintenance, the field would flow another 10 years. It is now almost 11 years old and the world's biggest pipe line is being talked about for East Texas. The temptation to predict that there never will be another East Texas cools under the belief that in time still other chapters will have to be added to the text book on petroleum geology.

If so, here is hoping that the restrictions which gradually are making oil-field development a routine matter will somehow be disrupted to the end that something more than routine reporting will be required. Gas-oil ratios and the demands of compliance from political sources are not colorful.

The Past 25 Years in Oil

Beginning of a New Era

[*Continued from page 62*]

It appeared that Russian drillers had an antipathy against American equipment because they had become accustomed to receiving presents or commissions from German manufacturers of oil-country equipment, which put the introduction of non-commission-paying American equipment under a handicap, even with a war with Germany in progress.

Shell brought in a 12,500-barrel well in Sumatra at Pankallan Soesoet, at a point where it already had storage tanks, a most accommodating wildcat. Cuba was getting a play and some pretty fair high-gravity producers. La Guaira, Venezuela, long before American and British operators had made the country famous for its oil, was paying 86.5 cents per gallon for gasoline.

Frederick G. Clapp, in an article which received widespread publicity, discussed the prospects of various South American countries. Many places which have since been discovered were mentioned — and references were made to some areas where development has not yet been undertaken.

Roumania had successfully destroyed her wells in face of the advancing Germans. How times do change!

Personalities of 1917

No study of a year or a period is complete without mention of personalities.

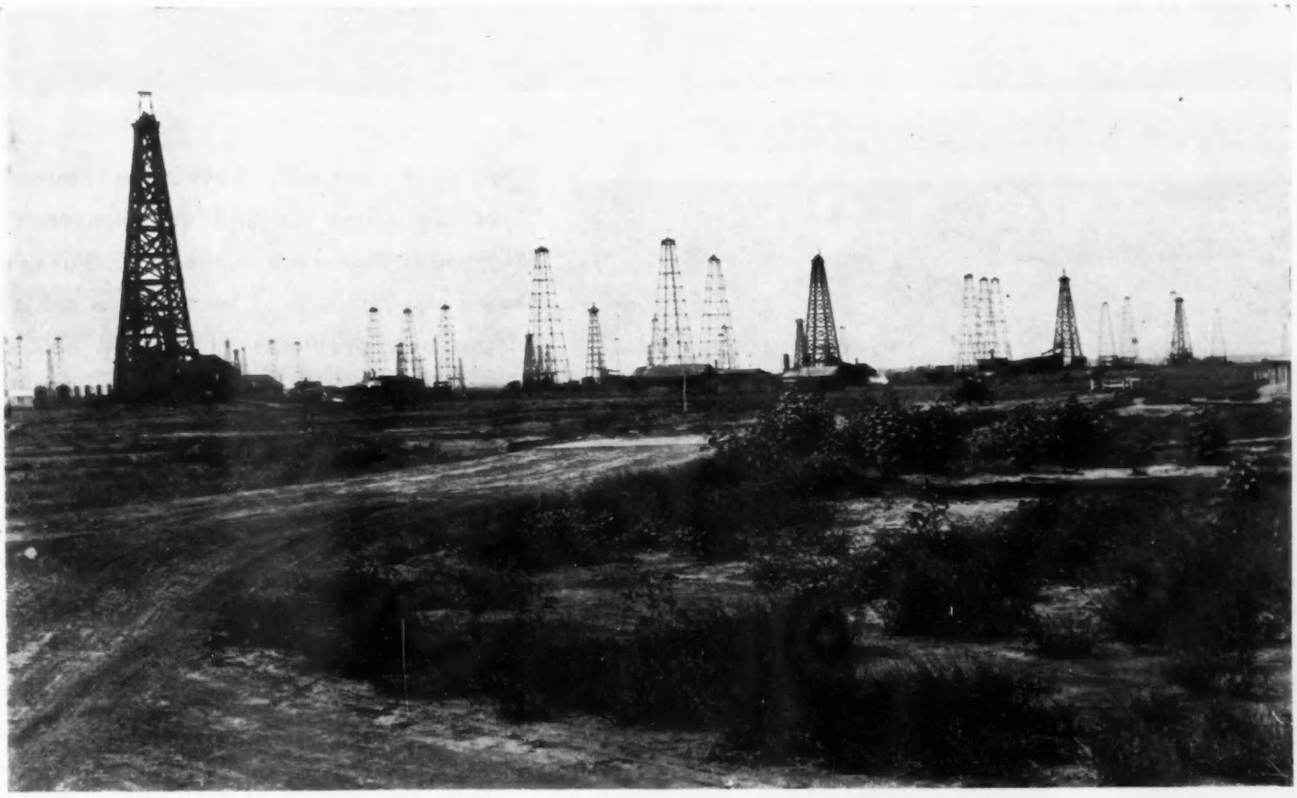
A. C. Bedford had just become head of Standard Oil Company of New Jersey. Reference to the news files of 1917 showed that the advertising occasioned by the famous Standard Oil suit had left a big impression on the mind of the public—and Ivy Lee came into the picture at a most opportune time, to try and salvage some of the goodwill left to Standard Oil Company of New Jersey. It was a day when anything which went wrong was blamed on Standard.

However, the advice which A. C. Bedford gave to young men, typified the code of a man who died beloved as a useful citizen, one who had contributed much to his country. In the light of present day tendencies, his advice is significant:

"Do everything you are told to do. When you have finished, look around for more to do. Have no regard for hours. Read, study, have some vision.

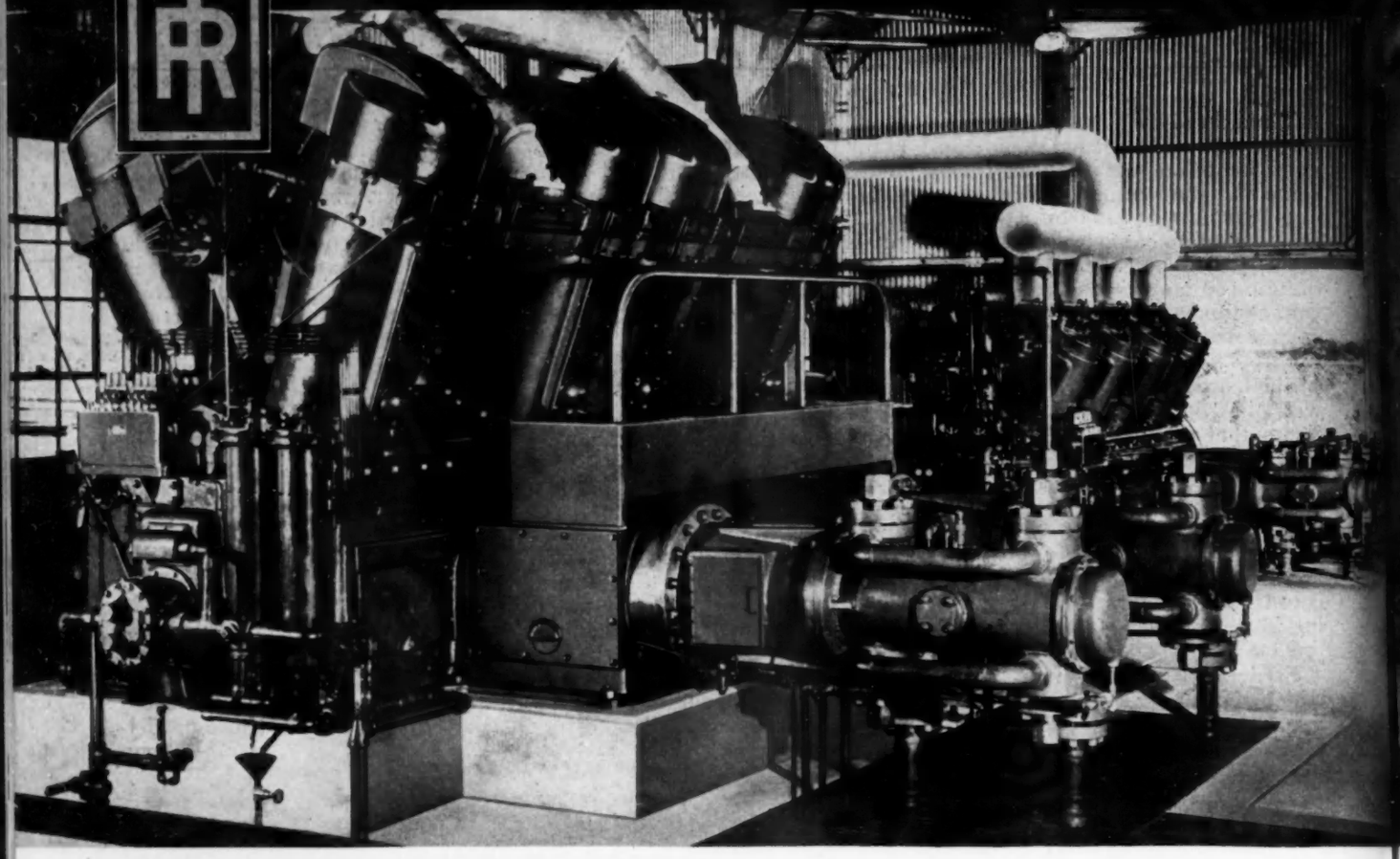
"I always ask any young man who comes into my office whether he has any religious affiliations or not. When any fellow has somebody or something stronger than he whom he trusts in temptation, it will bring him over his trials and get him success."

Bedford headed the Petroleum War Service Board, whose partici-



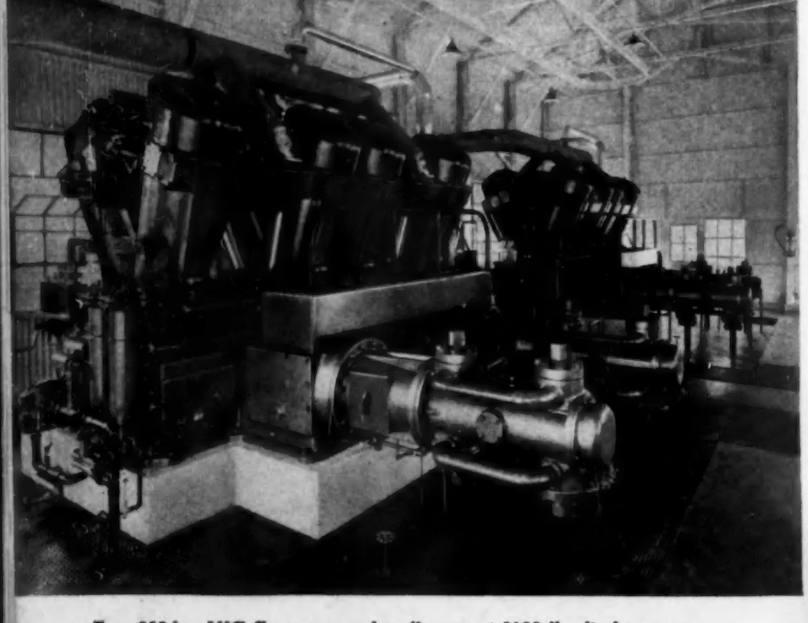
Sand and sagebrush in Garfield County, Oklahoma, in the Garber field in 1922. Steel derricks outnumber wooden three to one, and separators now flank each lease tank battery. Steam driven units pump some wells, with the slow-speed internal combustion engine gaining favor as prime mover.

RECYCLING C



One 650-hp. LVG and one 300-hp. XVG Compressor in the new 60,000,000 cfd. recycling plant of the Gasoline Production Corp. near Grapeland, Texas.

Type LVG 4-Cycle



Two 650-hp. LVG Compressors handle gas at 2150 lb. discharge pressure in this 50,000,000 cfd. recycling plant in the Texas Long Lake Field.

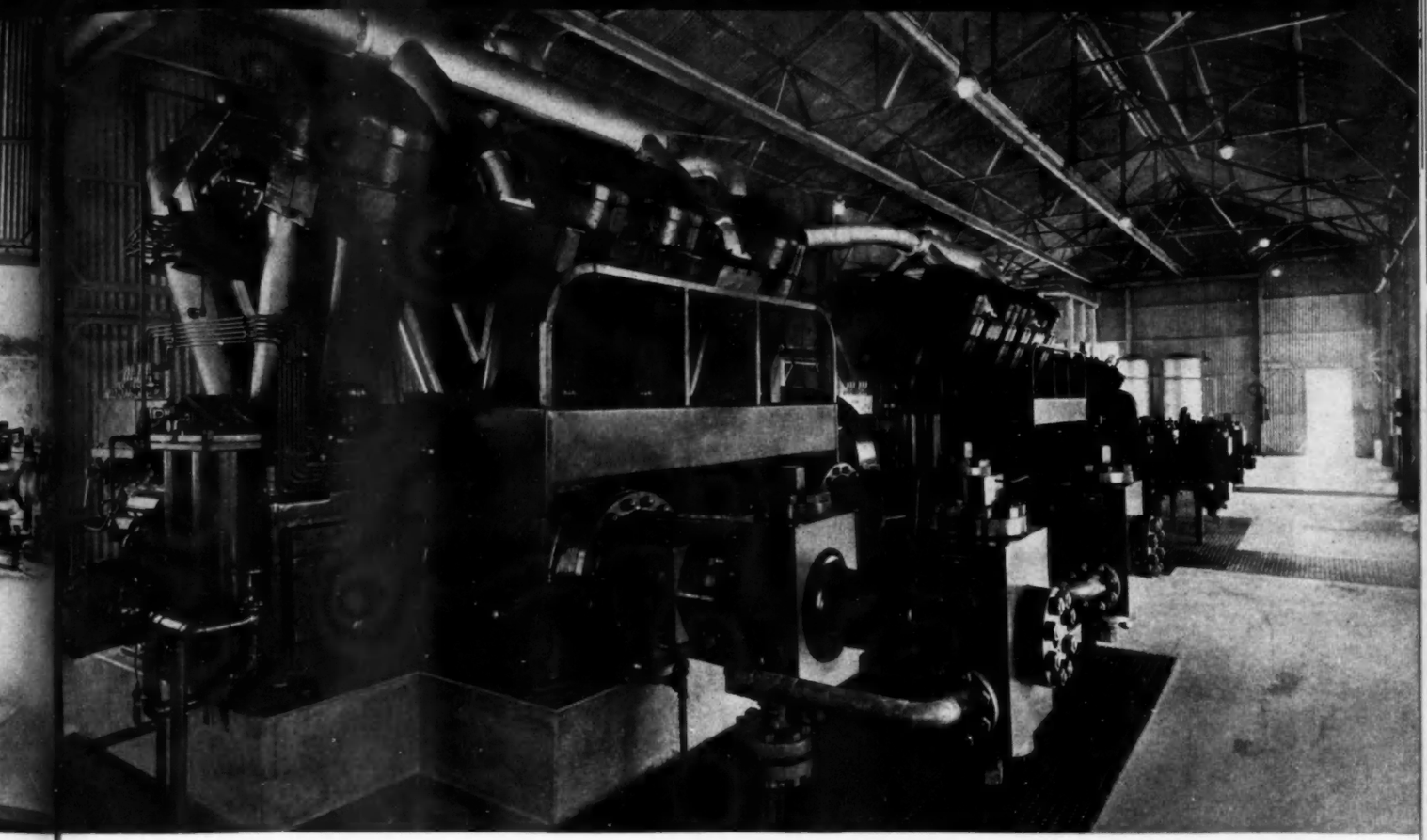
FROM the I-R shops have come thousands of the finest air and gas compressors. All types and sizes are represented. The company's experience is of tremendous value in solving new problems in natural gasoline production.

No units comparable to the LVG and XVG are today available with as many compressor cylinder sizes and types built and tested for as many varied services—sizes that can always be built again with advance knowledge of efficiency and performance.

The 4-cycle power ends of Ingersoll-Rand "VG" series compressors and the many com-

Atlanta
Birmingham
Boston
Buffalo
Butte
Chicago
Cincinnati
Cleveland
Dallas
Denver
Detroit
Duluth
El Paso
Hartford
Houston
Kansas City
Knoxville
Los Angeles
Newark
New Orleans
New York
Philadelphia
Picher
Pittsburgh
Pottsville
Salt Lake City
San Francisco
Scranton
Seattle
St. Louis
St Paul
Tulsa
Washington

G COMPRESSORS



The Coronado Corporation's 46,000,000 cfd. recycling plant in the LaRosa field in Texas uses two 650-hp. LVG Compressors. A third unit, a 225-hp. XVG has one recompressing cylinder.

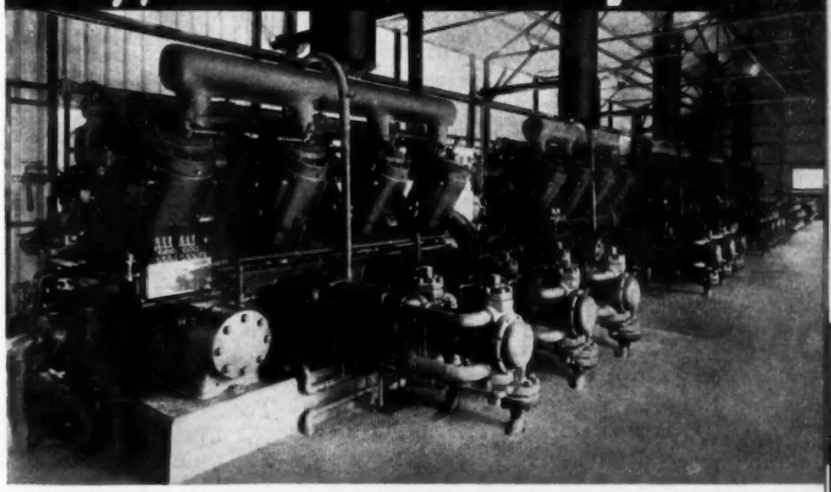
binations of compressor cylinders were designed together as coordinated units. They are substantially built and conservatively rated for continuous, full-load service.

These are the original gas-engine compressors of V-angle design. The inherent reliability and simplicity of 4-cycle units for oil-field service has been amply demonstrated by the many hundreds of machines now in service.

Let us send you complete information on the XVG and LVG gas-engine compressors—also on other Ingersoll-Rand products for the oil industry: Diesel engines, pumps, condensers, jets, blowers, stationary and portable air compressors, rock drills and other air tools.

996-6

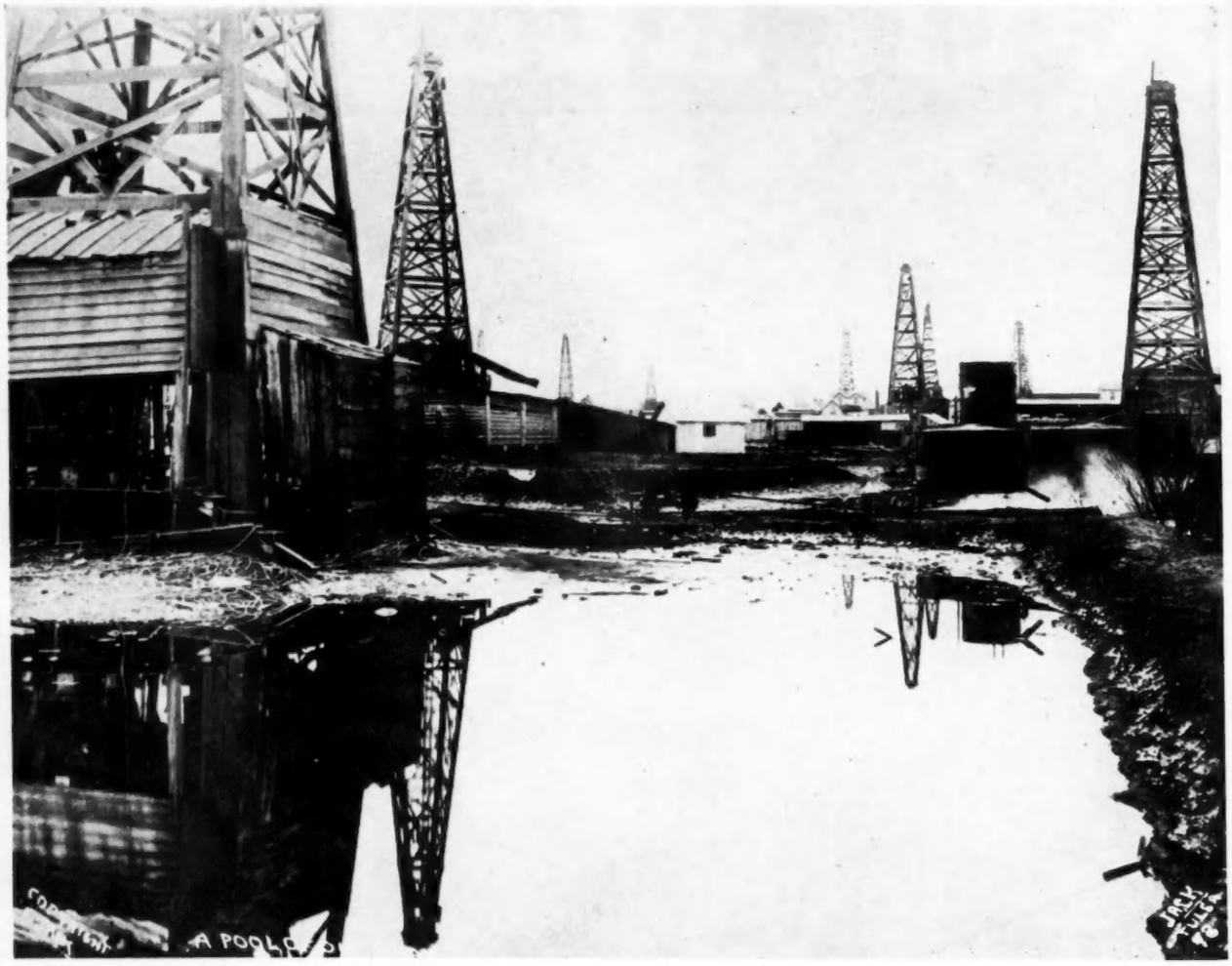
Type XVG 4-Cycle



H. M. Harrell, operating in the Bammel field, uses 5—300-hp. XVG Compressors in his 34,000,000 cfd. recycling plant.

Ingersoll-Rand

11 BROADWAY, NEW YORK CITY



Good housekeeping as practiced in the Yale-Quay field, Pawnee and Payne counties, Oklahoma, with pools of oil, drilling lines, gathering systems and firewalls occupying all available space between the ramshackle, housed wooden derricks — truly an ideal setting for a spectacular fire, if the igniting spark be furnished.

pation became greater in the year which followed 1917.

Associations Formed

Two famous associations of oil men were founded in 1917. A simple news item told that "the natural gasoline men have met and formed an organization." The Mid-Continent Oil & Gas Association was formed a little later at a meeting in Tulsa, electing Frank Haskell, president of Tidal Oil Company, president, and J. H. Evans, president of Devonian Oil Company, vice president. The list of 21 on the executive committee included the names of many who have made history in American oil.

Import Tax Agitation Started

But it was the operators in the Gulf Coast, rather than Oklahoma, who started the movement later to blossom into an American import tax.

Records of the period show that the president of the Gulf Coast Independent Producers Association addressed a memorial to certain Texas congressmen, asking in the name of the independent producers for an import tax on foreign crude. Only a week or two before, at a meeting of the producers in Houston he had made the statement that any refiner using Gulf Coast crude in making lube oil could well afford to pay $2.00 per barrel for the crude then bringing much less. The president of the Gulf Coast Independent Oil Producers Association was Wm. S Farish, now president of Standard Oil Company of New Jersey.

Names of many who have made oil history and passed on are to be found in the news reports of 1917, and names of many now living whose part has become more prominent are found also. For instance, Wm. G. Skelly, in 1917 actively and personally at almost every spot where there was any oil excitement, is described as "one of Tulsa's most popular oil men."

R. S. Sterling, later Governor of Texas, and back now actively in the oil business, is mentioned along with W. S. Farish, Harry C. Wiess, R. L. Blaffer and others in connection with the mergers of varied interests into Humble Oil & Refining Company and Jesse H. Jones, now head of Reconstruction Finance Corporation and Secretary of Commerce of the United States, is mentioned as a director of the newly formed company.

Homer F. Wilcox of Tulsa was described as "The busiest man in Oklahoma." Walter B. Pyron (now General Pyron of U. S. Army, on leave of absence from the position of vice president of the Gulf Oil Corporation) was noted as the "financial agent of the Gulf at Shreve-

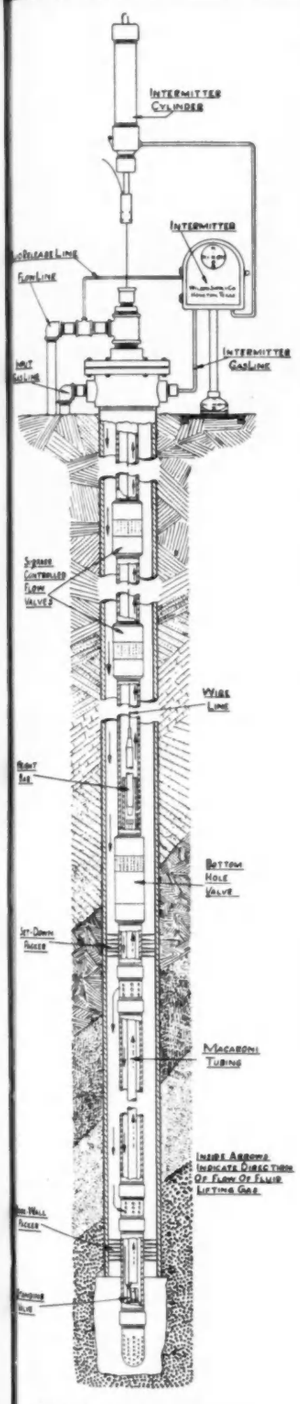
to economically lift fluid depth—in any volume

NIXON

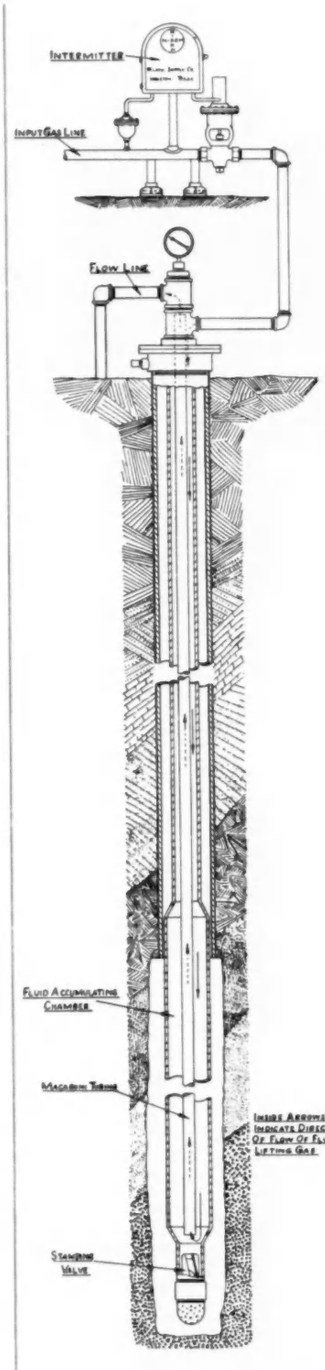
Surface Control GAS-LIFT SYSTEM

(PATENTED)

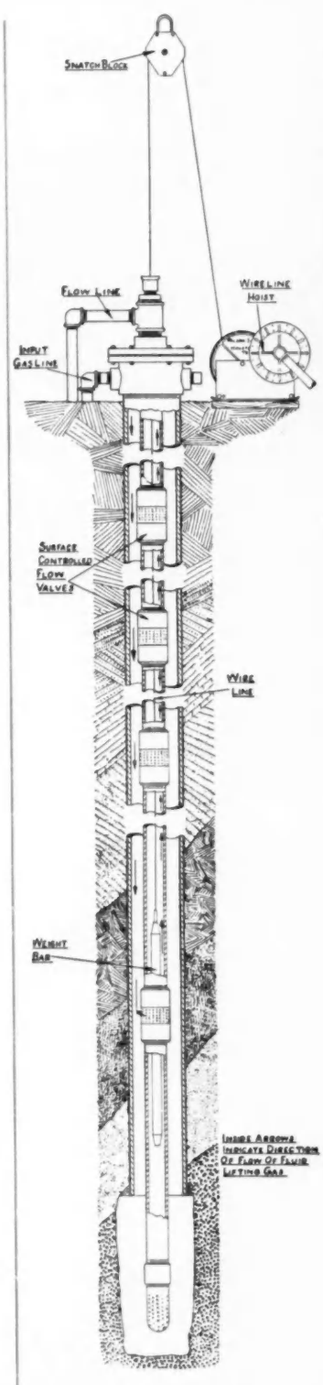
"from INSTALLATION to DEPLETION *without* disturbing sub-surface equipment"



Double Packer Installation . . . Casing used as Fluid Accumulating Chamber



Shallow Well Installation



Constant Flow Installation

The cost of a Nixon Gas-Lift installation is far below standard pumping units; operating costs are but a fraction of other methods and maintenance costs are practically nil. These economies amount to a substantial saving in the cost of producing your wells.

The following patents have been issued on the Nixon Surface Control Gas-Lift System:

2,132,091	2,171,480	2,245,004
2,136,457	Re. 21,199	2,245,005
2,153,770	2,208,482	2,245,008
2,164,689	2,214,617	2,245,007
2,171,812	2,217,072	2,245,009
2,171,478	2,245,002	2,245,009
2,171,479	2,245,003	2,245,010

Other patents pending

port, in Houston on a business trip."

John H. Tucker, recently deceased, was made general manager of the very active National Supply Company of Mexico.

W. M. Keck, now head of Superior Oil Company of California, was a contractor, drilling for Oil Exploration Company at Coalinga.

George A. Hill., Jr., then a junior partner in a Houston law firm, was that year getting his first oil experience, later to lead to the position of president of Houston Oil Company and vice president of Production of the A.P.I.

A young fellow named Homer McDuff, assistant field foreman of The Texas Company (then Producers Oil Company) at Humble, resigned and was given a banquet by fellow workers. Later he was an active figure in the working out of unit operation at Van, later drilling superintendent for Standard Oil Company of Venezuela and more recently back in the United States as general superintendent of Southern Production Company at Shreveport, Louisiana.

1918... The War Is Won

"DURING 1918 the industry, if not reborn, has been revolutionized," said THE OIL WEEKLY in reviewing the year.

Major Problems

The new year opened with major problems facing the nation and the oil industry.

Need for proper coordination between the government and industry, coordination which would help, not cripple, the industry in its efforts to meet a tremendous increase in demand was recognized from the day war was declared.

Radicals, and there were some even then, backed by labor, wanted little short of absolute federal control. Some labor leaders wanted government operation, feeling that the Wilson administration would give labor in the oil fields the same prerogatives it was about to get in the railroad business. Warren E. Platt of National Petroleum News, in an editorial during 1917, urged the appointment of an oil board which would have on it practical oil men, mentioning several who later filled places on the board. Texas was omitted from the roster, and this writer in an editorial urged the appointment of William Stamps Farish.

Following will be found the set up of the industry, as laid out by the government, to enable Oil to do its part in national defense:

Under Dr. H. A. Garfield, Administrator of the United States Fuel Administration came Mark L. Requa, general director of the oil division and the following organization for the government: N. B. Beecher, director, Bureau of Marine Transportation; G. E. Day, director, Bureau of Oil Well Supplies; T. A. O'Donnell, director, Bureau of Production; S. A. Guiberson, Jr., director, Bureau of Pipe Lines; W. A. Williams, director, Bureau of Technology; A. E. F. Reel, secretary to the director; O. N. Conley, manager, Bureau of Traffic & Transportation; J. W. Williams, director, Bureau of Special Assignments; G. W. Gray, director, Bureau of Refining; A. G. Maguire, director, Bureau of Prices and Licenses; T. B. Gregory, director, Bureau of Natural Gas; Thomas Cox, director, Bureau of Engineering; F. J. Silsbee, director, Bureau of Statistics; D. M. Folson, federal oil director, Pacific Coast; N. B. Beecher, counsel; W. O. Beall and H. S. Green, assistant counsel; A. C. Woodman, director and O. P. Keeney, assistant, Bureau of Lubricants and Foreign Requirements; G. G. Sheffield, director, H. A. Schloo, assistant, Bureau of Domestic Consumption; R. Wotowitch, director, Bureau of Export Section War Trade Board; W. C. Robinson, director, S. S. Wyer and E. S. Davis, assistants, Bureau of Conservation; J. Middleton, manager, Bureau of Traffic and Transportation

In addition to these men the National Petroleum War Service Committee was set up to represent the industry and comprised the following: A. C. Bedford, chairman; R. W. Stewart, chairman, board of directors, Standard Oil Company (Indiana); E. C. Lufkin, president, The Texas Company; E. L. Doheny, president, Mexican Petroleum Company; G. S. Davison, president, Gulf Refining Company; H. F. Sinclair, president, Sinclair Refining Company; J. W. Van Dyke, president, The Atlantic Refining Company; J. H. Markham, Jr., Tulsa, Oklahoma; Dr. Van H. Manning, director, Bureau of Mines; W. C. Teagle, president, Standard Oil Company of New Jersey; S. Messer, president, Emlenton Refining Company; J. S. Cosden, president, Cosden & Company; F. Haskell, president, Mid-Continent Oil & Gas Association; W. S. Farish, president, Gulf Coast Oil Association; E. W. Clark, vice president, Union Oil Company; R. D. Benson, president, Tide Water Oil Company; J. H. Barr, president, The National Supply Company; M. J. Byrne, president, Independent Oil Men's Association and Connecticut Oil Company; E. J. Prizer, president, Vacuum Oil Company; J. H. Pew, president, Sun Oil Company; M. Garey, general counsel, Standard Oil Company of New Jersey; B. G. Dawes, president, Ohio City Gas Company; H. L. Doherty, Cities Service Oil Company; A. P. Coombe, president, Standard Oil Company of Ohio; W. P. Gowan, president, Standard Oil Company of Indiana; H. E. Felton, president, Union Tank Line Company; J. F. Guffey; J. E. O'Neill, president, Prairie Oil & Gas Company; J. C. Donnell, president, Ohio Oil Company; H. M. Blackmer, president, Midwest Refining Company; G. W. Crawford, president, Ohio Fuel Supply Company; R. L. Welch, secretary, Western Petroleum Refiners' Association; J. A. Moffett, Jr., secretary and treasurer; C. C. Smith, assistant secretary and assistant treasurer.

The Oil Industry in the War

In reading the records of the oil industry during the war period one is struck by three things:

1. The willingness of the industry to make sacrifices,

2. The effort put forth to increase production,

3. The attitude of the government which was to allow private enterprise to govern itself until it was proven that it could not so govern—and the industry did so govern itself to the point where a minimum of interference was had.

In the case of the first of these, the operators from various parts of the country, faced with rising costs, desired higher prices. But when the

REED ROCK BITS *Unitized*

The construction of the Reed Rock Bit provides a strong, safe foundation upon which to mount the side cutters and cross cutters. The independently supported cutters are unified to give to the entire assembly a strong, rugged structure.

Heat treating and hard facing of the cutters and cutter teeth . . . cutters accurately balanced on greatly increased bearing supports . . . and Specialized cutter assemblies to best drill specific formations most efficiently, give to the Reed Rock Bit exceptional drilling qualities that have set new standards for Speed, Safety and "footage" per bit.

FOR GREATER SAFETY

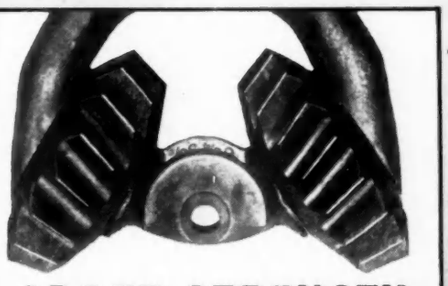
•

FOR VARYING ROTARY SPEEDS AND DRILLING WEIGHTS

•

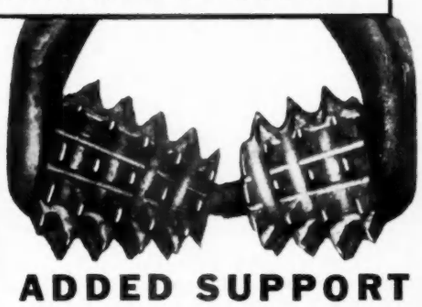
FOR MORE FOOTAGE PER BIT

•



ADDED STRENGTH

THE BRIDGE PREVENTS THE SIDE CUTTERS FROM BEING CROWDED IN OR SPREAD APART

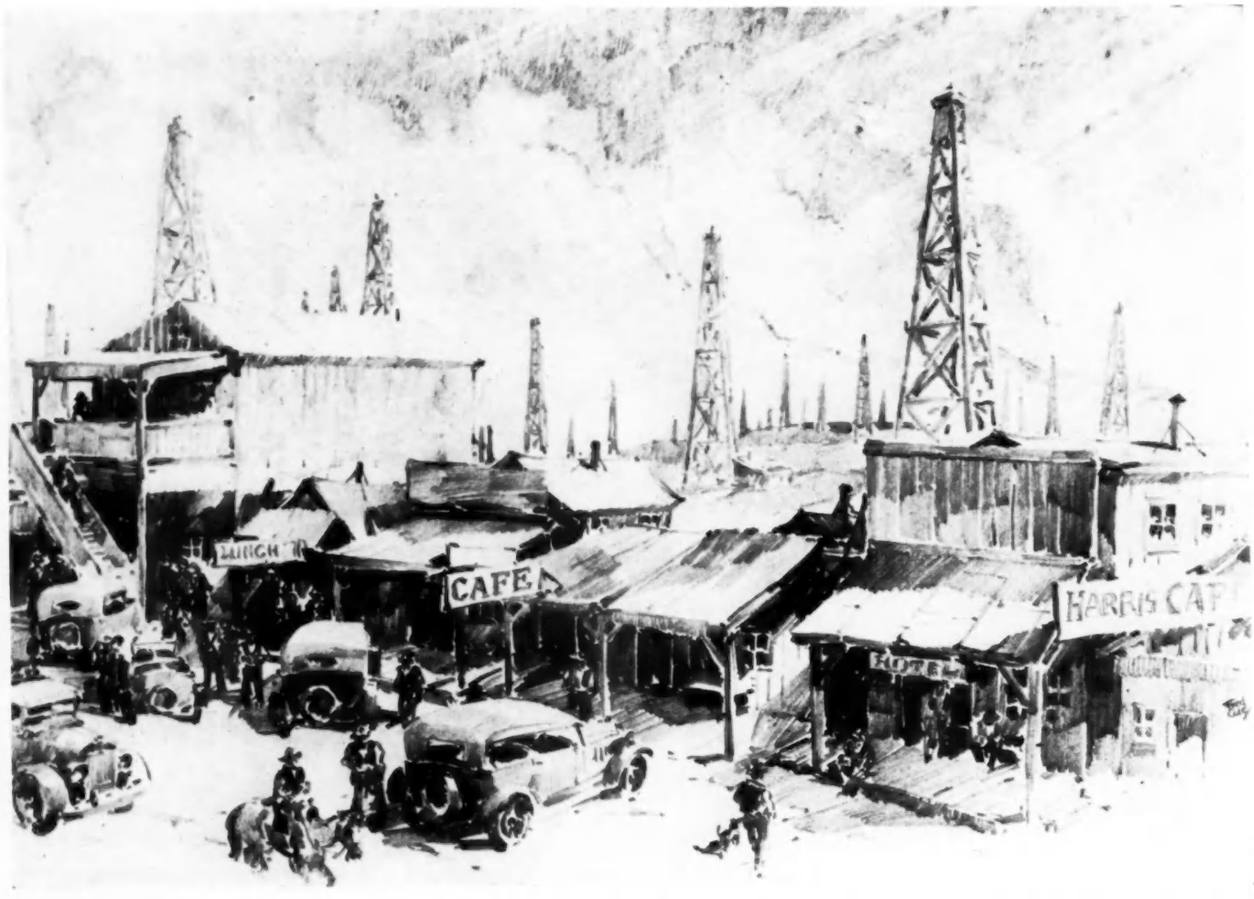


ADDED SUPPORT

THE CROSS CUTTER JOURNALS ARE TRUSSED TOGETHER FOR ADDED STRENGTH

ROLLER BIT COMPANY

POST OFFICE BOX 2119 • HOUSTON, TEXAS



"Shantytown," "Shacktown," "Boomtown," this artist's sketch of the typical oil-field civic center might fit into any of the big flush fields of a quarter of a century ago, with little change save in the models of the cars and the names appearing on the various commercial establishments. Center of the land, lease production and royalty trading which accompanied every new field. In such surroundings huge deals were made, fortunes changed hands, and a background of litigation built up which provided livelihood for generations of lawyers to come. Photo courtesy of Dowell, Incorporated.

Federal Fuel Administration, headed by Mark L. Requa, a successful operator from California, recommended a fixed price on crude which was lower than the price some operators were receiving, with the price-fixing powers of the government at the time being of somewhat dubious legality, the price was accepted and remained in effect till the close of the war. Mid-Continent crude was fixed at $2.25, except Healdton which was placed at $1.45; Gulf Coast grades at $1.85, and Texas light crudes and light crudes in Louisiana fixed at $2.25. Pennsylvania crude was pegged at $4.00; California (19-19.9-gravity) at $1.25; Salt Creek, Wyoming, at $1.50.

The effort to increase production will be treated under another head in this chapter, because it rose to new heights.

Attitude of Government

With reference to the attitude of the administration toward a minimum of interference, it may well be described in a statement to the industry by Requa, dealing with the prospects of run-away prices. He said that an industry to be healthy must earn a profit. However, the unrestricted competition for crude is not in the national interest, he declared, and expressed the thought that a voluntary control of price would be desirable. He pointed out that the problem could not be approached from the standpoint of a normal business, declaring that in the national interest, individualism for the time being must be swept away. "After the war," he said, "we may go back to individualism, but not before." His advice was taken wholeheartedly, not only on price, but on other matters.

Priorities, Then, Too

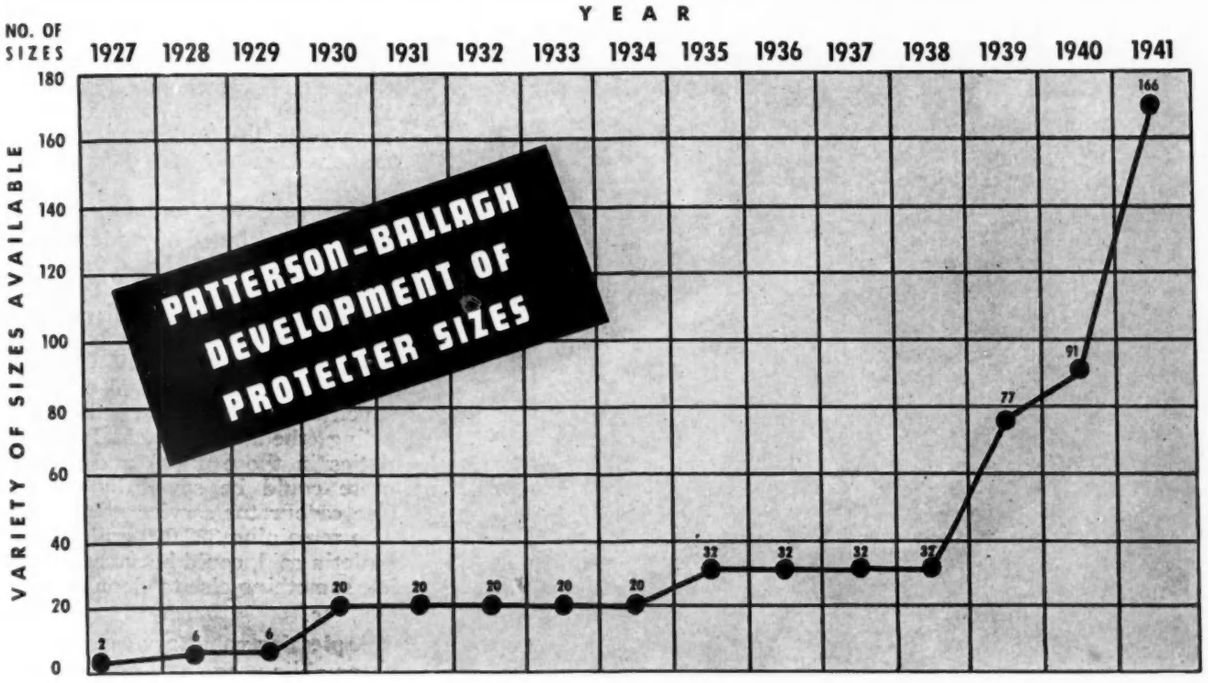
Priorities were applied to oil-country equipment, steel for such equipment being given a "B-2" rating, and equipment prices were fixed.

Purchasers agreed not to take connections away from other purchasers, and the producers agreed not to change buyers.

In those days, as many of us remember personally, the threat of German propaganda was great. Spy rumors and sabotage were frequent. The oil papers carried advertising paid for by the large companies, presenting the warnings of the government against subversive efforts. In fact, it is noticeable that the major oil company advertising appearing in the oil journals through 1918, either conveyed messages as a part of United States government's propaganda effort or for the Red Cross or Liberty Loans.

Tom O'Donnell, head of the Production Division of the Petroleum War Service Council, particularly urged that the industry nail the propaganda that Standard Oil Company of New Jersey was running the oil administration. He said that it would be worth $150,000,000 to

the greater the service



BEFORE 1927

1. Casing wore through, allowing water to enter, cutting life of well or causing collapsation.
2. Collars and tool joints wore rapidly.
3. Drill pipe had premature fatigue.
4. Crooked drill pipe, a frequent trouble.
5. Slow drilling speeds necessary.
6. Excessive power needed to rotate.
7. Kellys frequently bent.
8. Equipment had short life.
9. Cost of drilling, excessive.
10. Wells of great depth not commercially practicable.

AFTER 1927

1. Worn casing no problem, by use of Protectors.
2. Collars and tool joints show no wear.
3. Drill pipe has far longer life.
4. Crooked pipe a thing of the past, when Stabilizers are used.
5. Speeds of 500 r.p.m., common as compared with old speeds of 150 to 175.
6. Almost all power transmitted to bit.
7. Protectors or Stabilizers prevent Kelly bending.
8. Smoother drilling adds life to equipment.
9. Cheaper drilling costs per foot.
10. Wells drilled to 15,000 feet or more now possible.

FOR 14 YEARS—STILL CONTINUES

TUBING PROTECTOR
Since 1938

PIPE WIPER
Since 1939

SUCKER ROD PROTECTOR
Since 1940

WIRE LINE WIPER
Since 1940

KELLY WIPER
Since 1940

In the early days no well was worth noticing if it did not come in a gusher, and this General Petroleum well at Santa Fe Springs, California, was no piker, oil shooting well above the crown block and breaking into a dense cloud of spray which quickly gathered to form a pool and expose the entire neighborhood to the threat of disastrous fire.

Germany for the story to be completely disseminated and believed. He complimented A. C. Bedford, president of Standard, and the attitude of his company. O'Donnell was an independent of unquestioned standing.

The Gasoline Shortage of 1918

In these days of talk of gasoline shortage on the Atlantic seaboard, it is interesting to see just what stocks were back in those war days.

In May, 1918, gasoline consumption outstripped refinery runs by 1,100,000 barrels, and the month closed with only 30 days' supply on hand to supply the United States and her allies as well. A month later, these stocks had dropped to 22 days' supply, and stocks of all kinds were below 29 days' supply.

In June crude-oil stocks showed a decline of 16,800,000 barrels, as compared with the previous June, but only 100,000 barrels as compared with the close of May, 1918, indicating that production was beginning to climb.

There were tanker sinkings, too, though no shortage of tanker transportation between Gulf and Atlantic seaboard was reported. One tanker was shelled off the Virginia coast, escaping by superior speed, exchanging shells with the submarine. Another was not so fortunate and was sunk 40 miles off Halifax, N. S. The German Navy apparently had orders to go after tankers first.

How to Save Gasoline in 1918

One is reminded of modern times when one reads of the statement of the U. S. Bureau of Mines as to how 1,500,000 gallons of gasoline per day could be saved, published in the early part of 1918. Of these 1,500,000 gallons, 897,000 could be saved by stoppage of needless joy riding (the boys really had the statistics in those days) and 240,000 more could be saved by getting free carburetor service at garages. The remaining 323,000 gallons, the bulletin said, could be saved by using something else to clean clothes, etc., etc.

A plea for voluntary cessation of automobile usage on Sunday failed to produce results, so a Sunday closing order for garages and filling stations was resorted to. Most cities observed it.

Selective Draft Mistakes

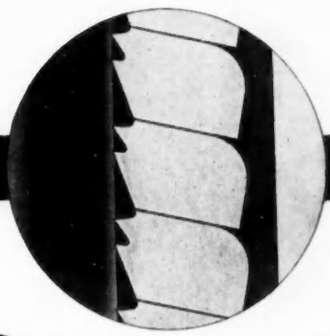
The selective draft made the same mistakes in those days that it is making now. Oil companies did the same. Highly skilled men, difficult to replace in highly essential industries, were drafted and their companies made no effort to show the government in the beginning that the loss of the men would hurt the production of oil. Technical men either volunteered and went to officers' training school, or got guns in their hands in the beginning—just as now. As the war wore on common sense began to take hold and provisions were made for the return of skilled men to highly essential industries, including oil.

But It Did the Job

How this country sent an ever-increasing flood of gasoline to the Allies and to friendly countries, is seen in the export figures. In 1916 there were 8,473,102 barrels of gasoline sent abroad. In 1917 it in-

"Rolling Dog" Slips
HANDLE PIPE FASTER

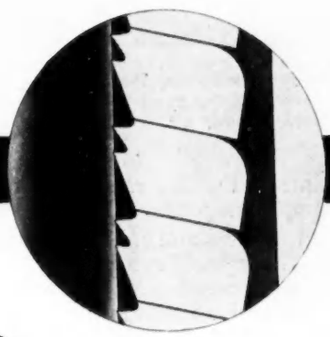
POSITIVE GRIP

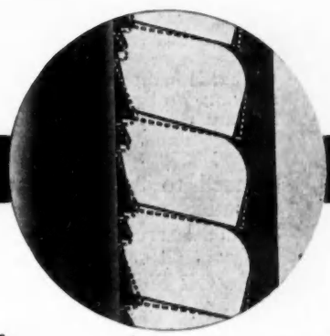


1 WHEN SLIPS ARE DROPPED IN BOWL, the Dogs roll upward slightly . . . Notice how the Mission tooth design insures positive gripping even after teeth are worn.

2 WHEN LOAD IS BEING TAKEN BY SLIPS, the Dogs roll downward to grip the pipe firmly . . . This positive gripping saves much time usually lost in trying to make ordinary slips hold.

INSTANT RELEASE



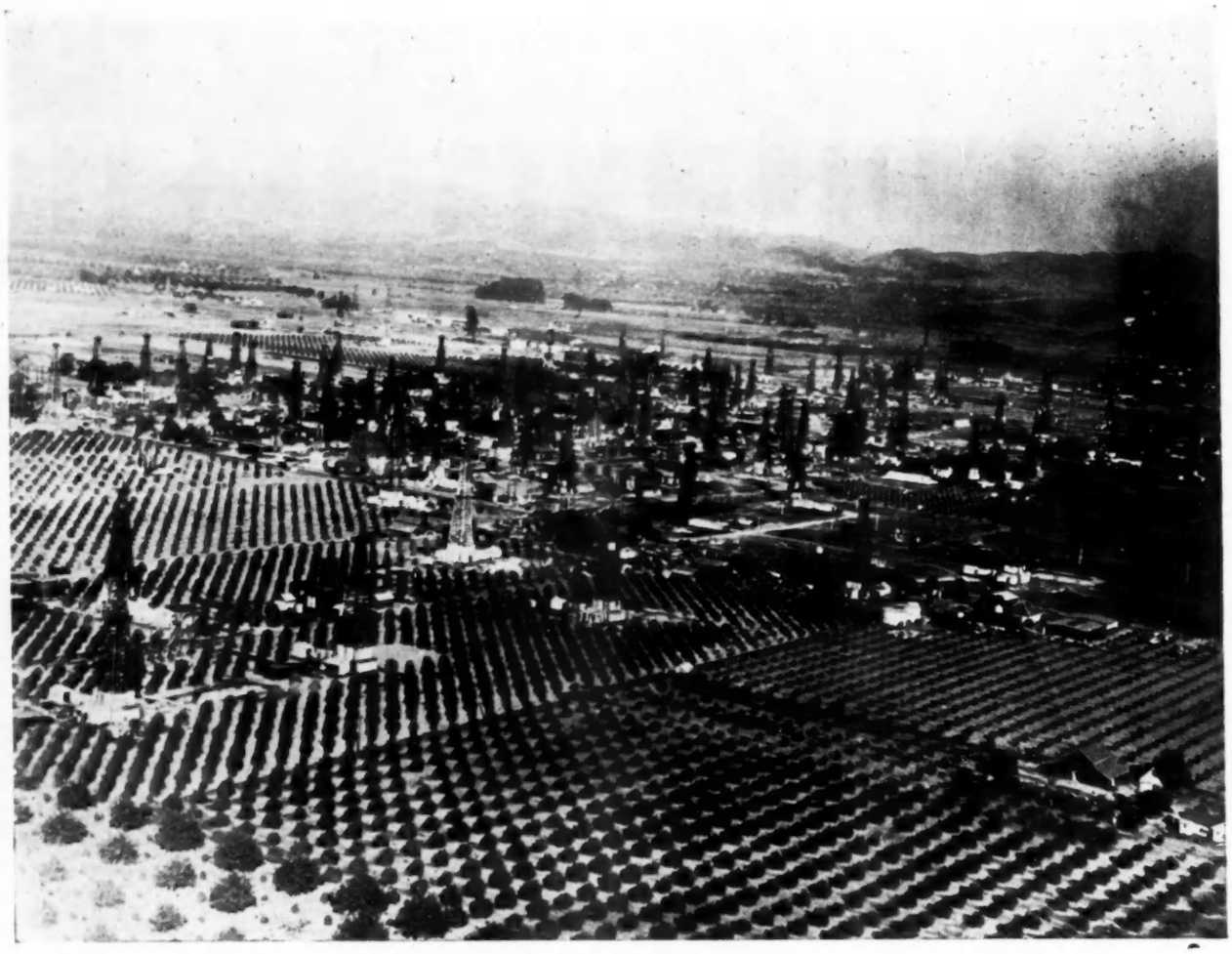


3 NOW SLIPS ARE SUPPORTING PIPE: The small, non-continuous dog teeth grip the pipe firmly with minimum damage. These teeth give exceptionally long life.

4 NOW LOAD IS BEING TAKEN OFF SLIPS: Notice how the dogs roll upward and away from the pipe — releasing the pipe and freeing the slips from the bowl.

You handle pipe faster and safer with Mission *"Rolling Dog"* Slips.

MISSION MANUFACTURING CO.



Orchards must go on, even though the oil companies do require a little space for pits, derricks and drilling equipment. Here at Santa Fe Springs, California, only a minimum of the productive surface soil is set aside for oil production as the orchardists are assured of a plentiful and exceedingly handy source of oil for their smudge pots in case of a threatened freeze.

creased to 9,901,877, and in 1918 these exports had increased to 13,312,508 barrels.

Oil Field Strike in 1918

Among the problems facing the industry in two widely separate areas, the Texas-Louisiana Gulf Coast and California, was that of the oil field strike which had begun several weeks previously.

Troops were guarding the fields.

The federal government's mediation commission took a hand, sending two minor representatives to the affected regions, and then Vernon Z. Reed of Colorado, who, if not a "hot shot" in the mediation business, conveyed the idea that he thought he was one.

The strike was settled in California through the signing of an agreement which fixed the wages at $4.00 per day for oil-field labor, the hours at 8 per day, with overtime at the day rate, but the open shop was preserved.

In Texas and Louisiana the matter was not settled so quickly. Reed showed a lack of diplomacy and a misunderstanding of his authority which drew a quick protest from the operators. He arrived practically unheralded, in Houston, suffering from the mistaken idea that he could tell the operators what to do, and then rather abruptly left, telling the newspapers he had settled the strike. He evidently didn't know that he had to deal with some keen legal minds whose knowledge of constitutional rights had been a life study.

Reed's hurried departure, leaving directions for the operators to grant most of the union demands, however, only brought the fight to a head.

Two hundred and fifty operators, representing 95 percent of the production in the affected areas, met at Houston and prepared a reply to Reed's decision. It challenged his right to direct the industry in its employe relations, it charged failure on his part to consider the situation on its merits, it presented facts showing that the employes had just received a 20 percent increase in pay, not long before the strike, claimed that with proper protection against violence, the properties were producing at prestrike levels, and by inference suggested a bias on the part of Reed. A committee went to Washington.

The story of the meeting in Washington made interesting reading back in February, 1918. It revealed that Reed had come to Houston with a tale of powers it was found he did not have. Encouraged by his attitude, the striking oil workers felt that the millennium had arrived — they even formed organizations to take over, electing superintendents for community operation in various

ES OF PROGRESS

TOBIN SERVICES

PHOTOGRAPHIC MAPS — Geodetically controlled and providing an exact picture of the ground, in scale.

REGIONAL BASE MAPS — Traced from the accurate photographic maps for the permanent recording and correlation of exploratory data.

LAND OWNERSHIP MAPS — Accurate because they are constructed by plotting the recorded field notes on the photographic maps—thereby detecting the discrepancies between the record titles and actual occupancies.

PIPELINE MAPS — Aerial Mosaic strips in any desired width and length, including prints for stereoscopic study. In addition, all title information, compiled by trained and experienced abstractors, can be supplied for right-of-way purchases. Invaluable for use with power transmission lines and telephone cables as well.

ABSTRACTS OF TITLE — Complete county records, photographed on microfilm, making available photographic copies of all or any part of the records desired. Complete abstract of title service.

MICROFILING — Correspondence, invoices, orders, receipts, cancelled checks, engineering drawings, library volumes, newspaper pages, legal documents — all reduced, photographically to produce an enormous saving in space and at fractional cost of any other copying method.

REPRODUCTION AND DRAFTING — Laboratories, drafting rooms, facilities and personnel are available for all types of map construction, alteration or reproduction, on contract basis.

SAN ANTONIO HOUSTON

ERIAL SURVEYS

Relationship Between Crude Oil Production, Producing Wells, and Well Completions During Past 25 Years

(Source: U. S. Bureau of Mines)

YEAR	Crude Oil Production (Barrels)	Oil Wells Producing at End of Year	Daily Output Per Well During Year (Barrels)	Oil Wells Completed During Year*	Total Wells Completed During Year*
1916	300,767,000			18,777	24,619
1917	335,316,000			16,590	23,407
1918	355,928,000	No Data Prior to 1921		17,845	25,687
1919	378,367,000			21,052	29,173
1920	442,929,000			24,273	33,911
1921	472,183,000	274,500	4.9	14,666	21,937
1922	557,531,000	284,880	5.7	17,333	24,689
1923	732,407,000	290,100	6.6	16,206	24,438
1924	713,940,000	299,100	6.2	14,587	21,888
1925	763,743,000	306,100	6.5	16,559	25,623
1926	770,874,000	318,600	6.8	19,013	29,319
1927	901,129,000	323,300	7.7	14,442	24,143
1928	901,474,000	327,800	7.6	12,526	22,331
1929	1,007,323,000	328,200	8.4	15,572	26,356
1930	898,011,000	331,070	7.5	11,640	21,240
1931	851,081,000	315,850	7.2	6,788	12,432
1932	785,159,000	321,500	6.7	10,444	15,040
1933	905,656,000	326,850	7.7	8,068	12,312
1934	908,065,000	333,070	7.5	12,520	18,197
1935	996,596,000	340,990	8.1	15,108	21,420
1936	1,099,687,000	349,450	8.7	17,800	25,166
1937	1,279,160,000	363,030	9.8	22,143	31,397
1938	1,214,355,000	369,640	9.1	19,121	27,400
1939	1,264,962,000	380,390	9.2	17,485	25,987
1940	1,351,847,000	392,268	9.6	19,125	28,124

* Well completion data reported by the Bureau of Mines have been found incomplete when compared with more accurate field reports as published by THE OIL WEEKLY but are used here for the sake of uniformity in comparison with other Bureau data.

fields, and it was reported that one such "cell" wired Washington it was ready to take over.

Agreement Is Made

Finally an agreement was made, between the operators and the Department of Labor, which superseded Reed's findings (on Reed's objections the words "set aside" were changed to "supersede"). Then the union representatives refused to sign, so the operators left for home. A few days later the union men signed. Within the week the Federal Mediation Commission ceased to exist, being "superseded" by seven bureaus!

The terms of the agreement provided machinery to handle complaints on the part of the employes.

Provisions for appeal were made. (It is interesting that the later record showed no appeals.) The principle of the open shop was sustained, wages and hours were left to the board of appeals. The agreement was to last throughout the war.

Listed as secretary-counsel of the comparatively short-lived Mediation Commission was Felix Frankfurter, now Supreme Court justice.

Although the settlement came early in the year, troops were kept in the fields till summer. The labor situation quieted down and at a convention of the oil-field workers union in El Paso, late in the year, the conservative element took control, refusing to seat the principal radical leader from California, a man reported to be an alien who had aspired to control of the union.

New Fields in 1918

Nineteen hundred and eighteen was not so famous for its new fields discovered, as it was for the development of fields discovered the year before.

The discovery of Ranger field late in 1917 had started a boom in West Texas. Burkburnett, with some big wells touched off a boom in North Texas. Hull and West Columbia were making history in the Gulf Coast, while Pine Island was furnishing big wells in North Louisiana. Oklahoma and Kansas continued a strong campaign, with heavy output of production. Duncan and South Oklahoma were getting a real play.

Central West Texas (Ranger-Breckenridge) was in the process of getting a thorough drilling. The supply situation improved, thanks to wise administration at Washington, and the foreboding expressed at the beginning of the year, as to the ability of the industry to meet demand, was allayed as the year closed. Probably it was this intense drilling campaign, with good results, which made the stock situation bearable. A network of pipe lines began construction — probably the greatest year of pipe-line expansion up to that time.

New Mexico began to get a wildcat play, result of discoveries in Central West Texas.

The rush to increase production in 1918, and the opportunity for such work, found operators more interested in making hole than in anything else. However, there were some contributions to more scientific development during the year. More and more attention was coming to be paid to paleontology. The larger companies had long been the pioneers in the use of geologists, but with each year from 1918 on, the geologist was to play a more and more important role.

The U. S. Bureau of Mines, about to complete at Bartlesville an experimental station for its petroleum department, in which many fine technologists were to get post-graduate work in engineering, issued a bulletin prepared by J. O. Lewis in which conviction was expressed that its investigation showed that from 25 to 90 percent of the oil in a given sand was not recovered by methods then in use, and averred the suspicion that actually the unrecoverable oil would amount generally to 85 to 90 percent. No suggestion as to how to improve recovery was made.

Spacing was beginning to get attention, and in California oil men gathered by call of the State Mining Bureau decided that four wells to an acre was too close. Some talk was indulged in about a well to 10 acres.

THE OIL WEEKLY urged for Texas a proper law on shutting off water, pointing out some recent glaring examples of loss from failure to cut off. Two or three weeks later Kansas operators at Caney met and tried to get something done in Kansas to prevent loss from water contamination. And in the early fall Tom O'Donnell, head of the production department of the Petroleum War Service Council, told the operators at Burkburnett what they had to do in shutting off water.

Chemical and electrical dehydration of oil emulsions were under way, but in the Mountain States one large company was trying to by-pass a patent and laying the predicate for a lawsuit, which established chemical treatment more firmly.

A random reading of records of 1918 brings to light some interesting things.

Imperial Oil Limited, capitalized

On Our 70th Anniversary

We congratulate The Oil Weekly on its
25 years service to the Oil Industry

Bovaird Store at Bradford, Pa.
Established in 1895

Bovaird Store at Sapulpa, Okla.
Established in 1907

It was at Shamburg, Pa., in 1871 that the Bovairds first began to serve what is now one of the greatest, most vital industries in America. For nearly three quarters of a century Bovairds have been headquarters for the great oil fraternity; and their offices and stores have been the centers for quality supplies and equipment.

With such a background of experience and a trained personnel, Bovaird is admirably equipped to economically and promptly serve your needs.

F. D. "Frank" Bovaird
Vice-President

W. M. "Merve" Bovaird
President

D. D. "Davis" Bovaird
Treasurer

"Buy From Bovaird"

In the
Mid-Continent
Since 1903

THE BOVAIRD SUPPLY CO.
General Offices: Tulsa, Oklahoma

Stores in
Illinois, Kansas,
Oklahoma, Texas

Getting the close ones!

The team that wins the close games captures the pennant. Those 1-0 and 2-1 victories count just as much, and happen a lot oftener than the lopsided scores. In industry the company that lands the keenly contested orders forges ahead. There's no profit in "almost" making a sale!

When a sale depends on rush delivery, you'll be glad your product is stored with General American. At each of our strategically located terminals, day and night crews are ready to dispatch tankers and trainloads —**fast.** Meanwhile you can know that your bulk liquids are getting the most modern fire-safe, efficient, contamination-proof storage in the world. Terminate your shipping worries, with the 7 exclusive benefits of General American Terminal Service.

Only General American Gives All These Advantages:

1. **NO CONTAMINATION.** Separate pumps, lines, storage zones for dissimilar commodities.
2. **MODERN PROTECTION.** Latest safety appliances; lowest insurance rates, minimum evaporation losses.
3. **RELIABLE CUSTODIANSHIP.** Our warehouse receipts are highest type of collateral everywhere.
4. **INDEPENDENT OWNERSHIP.** Strictest privacy; we do not buy, sell or refine any commodities.
5. **NO WHARFAGE.** There is no wharfage charge at our own private docks.
6. **SPEED WITH SAFETY.** Day and night crews, complete facilities, eliminate all shipping delays.
7. **WORLD'S LARGEST TANK CAR FLEET.** One car or hundreds, wherever and whenever needed.

Strategically located to serve you!

GATX GENERAL AMERICAN

GENERAL AMERICAN TANK STORAGE TERMINALS

Goodhope, La. and Westwego, La., (Port of New Orleans)
Corpus Christi, Texas
Carteret, N. J. (Port of New York) **Galena Park, Texas** (Port of Houston)

A DIVISION OF GENERAL AMERICAN TRANSPORTATION CORPORATION

at $50,000,000, was incorporated in Canada — parent to at least two important South American companies, the International Petroleum Company, and its child, Tropical Oil Company, Imperial itself being an offspring of Standard Oil Company of New Jersey.

In 1918 England needed 55,000,000 barrels of fuel oil, a report said. Gasoline prices in Venezuela were cut to 40½ cents per gallon through the location of a Caribbean Petroleum Company refinery near Lake Maracaibo, while the Shell's plant at Curacao, later destined to be the largest in the world, was under construction — 12,000 barrels daily to be its initial capacity.

Aviation Gasoline

Aviation gasoline specifications first showed up on government requests for bids in 1918, a total call being made during the year for less than 60,000 barrels with specifications which would not today equal those of ordinary motor gasoline, octane rating being unknown then. Compare this with a demand for 6,299,000 barrels of 100-octane aviation gasoline for the first half of 1941 and the present plans to increase aviation-gasoline production to more than 30,000,000 barrels annually.

"New Navy" specifications for gasoline were issued in 1918.

A survey of the banks in the oil country showed that in most places the banks wanted oil men as depositors, not borrowers. In those days, the Gulf Coast and Louisiana did not have posted prices, as was the custom in other areas, but oil was bought on contract and banks did not even want to lend on oil in storage, while a producing property to some important banks in the oil country was considered in the same collateral category as that much blue sky. How times have changed!

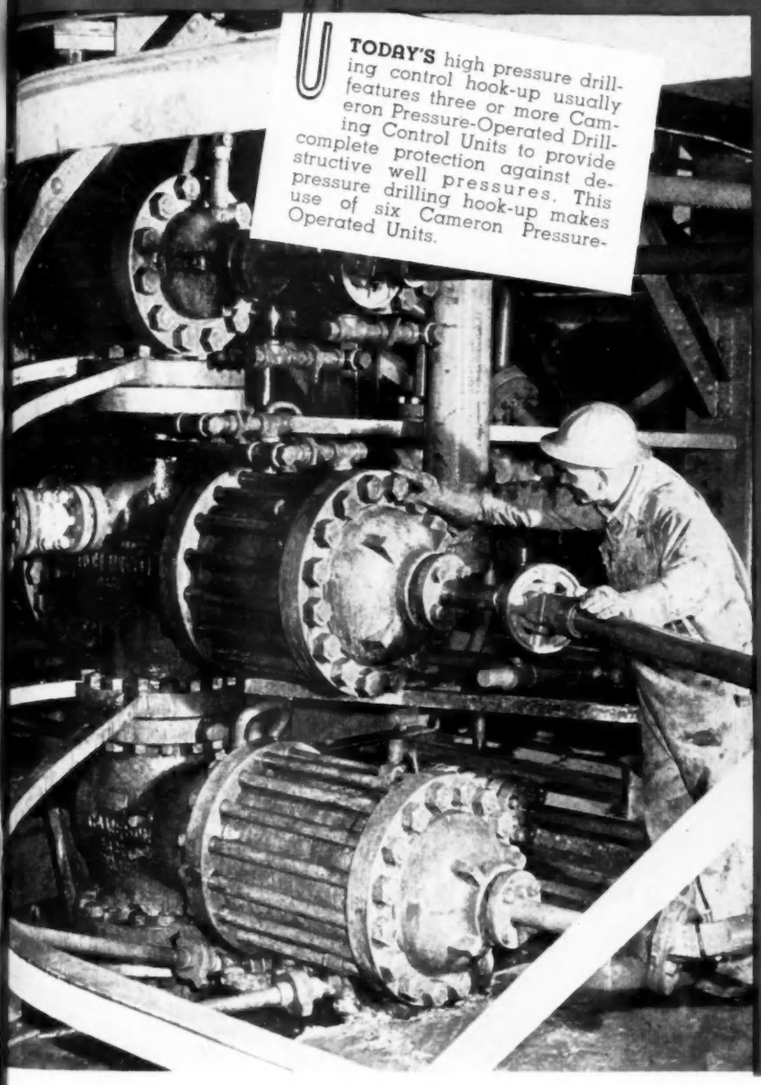
But in light of the facts as they existed, the banks could not be greatly blamed. One day a company might have 5000 barrels a day production, and the next exactly nothing.

Side Lights of 1918

Fake stock promoters were just beginning to get ready for the killing they were to make during the next several years.

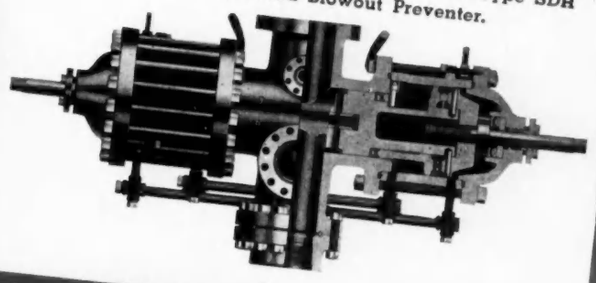
In the spring The Gulf Coast Oil News opened an office in North Texas and on April 20 changed its name to The Oil Weekly, and as the writer had a part in the renam-

Twenty Years Ago,
PANIES CAMERON-IZE!

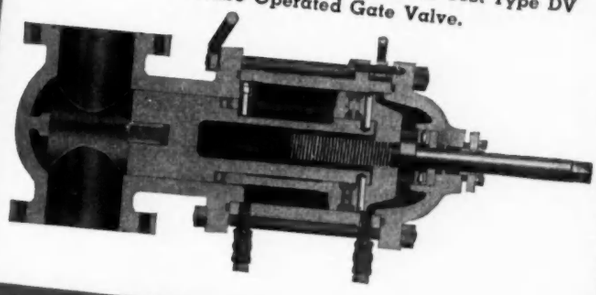


TODAY'S high pressure drilling control hook-up usually features three or more Cameron Pressure-Operated Drilling Control Units to provide complete protection against destructive well pressures. This pressure drilling hook-up makes use of six Cameron Pressure-Operated Units.

Cross Section View of Cameron 6000-Lb. Test Type SDA Pressure Operated Blowout Preventer.



Cross Section View of Cameron 6000-Lb. Test Type DV Pressure Operated Gate Valve.



Now, as never before, when oil and defense are so closely allied, you need the world's surest protection against blowouts . . . to conserve oil, gas, and reservoir pressures and to prevent the destruction of costly drilling machinery. **Cameron Pressure-Operated Drilling Control Units of adequate capacity* provide that protection.**

Numerous exclusive operating advantages combine to make Cameron Pressure Operated Drilling Control Units essential to safe drilling operations.

They Close Instantly—Pressure supplied by boiler feed pump, slush pump, or both, remotely controlled from the derrick floor, closes rams and ram gate instantly. (Manually operated units also available, if desired.)

They Seal Unfailingly—Patented self-feeding packing elements in blowout preventer rams effect a positive seal the instant closing pressure is applied. Ample reserve of resilient packing material permits rotating and moving pipe in hole safely under pressure. The self-feeding packing element in the valve ram gate automatically feeds out and effects a pressure-tight seal even though the seat should be roughened, corroded or sand cut.

Pipe Is Centered Automatically—Heavy angular wing guides made integral with the blowout preventer rams automatically center pipe in the hole and totally eliminate danger of rams being held open.

Well Cuttings Cannot Prevent Closure—Cylindrical rams eliminate any shelves or shoulders on which cuttings may accumulate.

These are but a few of the many features of Cameron Pressure Operated Drilling Control Units which are presented in your Composite Catalog. Or, descriptive literature will be gladly sent on request.

*3000 lb. test units for depths to 7000'; 6000 lb. test units for depths exceeding 7000'.

CAMERON IRON WORKS, INC.

711 MILBY STREET — HOUSTON, TEXAS

EXPORT: 74 Trinity Place, New York, N. Y.
OKLAHOMA: Paul Edkin, Tulsa
CALIFORNIA: The Howard Supply Co., Los Angeles
ROCKY MOUNTAIN: Mountain Sales and Service, Casper, Wyo.

ing of the magazine, he recalls that in the name the emphasis was on the *"The"!*

West Texas oil men organized in the summer. J. Edgar Pew, who had resigned his position with The Carter Oil Company to become vice president and general manager of Sun Oil Company in Texas, being the first president, and Robert Jordan of the Mineral Wells Petroleum Company, vice president.

Pullman Car Was News

News that the "T. P." had put on a Pullman from Dallas to Ranger made the oil papers, as did pictures and reports of increasing mud and congestion at Ranger.

The writer recalls being in Ranger when a gaily colored car, decorated with banners, came into town. The occupant, we spectators immediately knew, was a scientist of the deepest dye, because one banner boldly blazoned the words:

"Hail, the oil geologist has arrived!"

As we recall it, his name never did adorn the rolls of the later organized American Association of Petroleum Geologists.

Ranger, when the boom started, had the usual accommodations for "travelling men" which any West Texas city of 1200 population had, which isn't by way of complimenting such accommodations.

On the writer's first trip there, we slept on a floor, in a house on the outskirts of town, and the gracious lady who spread the quilts on the floor for my companion and me, said she was ashamed to take the dollar apiece we paid her for lodging. The next time we were there, we didn't sleep, and so, also did not a great many other people, we found.

But later still — who, among those who visited Ranger in its heyday does not carry vivid memories of what was currently called The Beaver Board Hotel, reported in THE OIL WEEKLY as having a bath on every floor?

And when the town grew up more, who does not recall the necessity of piling the furniture against the hotel room door, if a good night's sleep was wanted!

But it was the mud at Ranger which made the greatest impression on visitors. Only El Dorado, Arkansas, later, could hold a candle to it. A thriving business was created in the transportation of citizens from one side of the street to the other, by means of sleds. As we recall it, one sled used a mule, another a tractor.

In Mexico

In Mexico the seeds of the revolution, which was to depose and cause the death of Carranza, already had been sown.

Carranza, a consistent hater of things American above all, was managing to create enemies right and left. His control over the Tampico section, which he claimed as part of the Mexican government's administration, did not interfere with weekly murders of American citizens employed in the oil business. And toward the end of the year he planned to put into effect a scheme for nationalizing the oil lands of Mexico, regardless of the attitude of the ownership of the land.

Personalities

An item in THE GULF COAST OIL NEWS of 1918 struck us as we reread it:

"Last week we stated in this column that if The Texas Company employee at Sour Lake, who came to Houston and bought a dollar's worth of sachet powder and a bar of soap, didn't send in his subscription, we would print his name and tell what we knew on him. During the week we received seven subscriptions from The Texas Company's force at Sour Lake!"

John H. Galey, loved by those who knew him, died early in the year, a former member of the partnership Guffey-Galey, prominent in Mid-Continent oil affairs.

It was in 1918 that Wallace E. Pratt, after serving his hitch with the government in the U. S. G. S., and becoming geologist in charge of production department for The Texas Company in North Texas, resigned to begin his association with Humble Oil & Refining Company as chief geologist. He later became vice president and is now a vice president of Standard Oil Company of New Jersey, and one of his most cherished possessions is the award made him a few years ago by the Mid-Continent Oil & Gas Association as one of the men who had contributed in large manner to the oil industry in Texas.

Occupying the position of chief geologist of Aguila in Mexico, but a frequent visitor in the States at that time, was E. DeGolyer, properly referred to in these days as Dr. DeGolyer, later president of A. I. M. E., also a holder of a Texas Mid-Continent award and the A. I. M. E. Lucas award, a leading scientist and at this time a technical advisor, dollar a year man, in the Petroleum Coordinator's staff at Washington.

1919 . . . Readjustment Year

READJUSTMENTS and growing pains characterized 1919. Shortly after the close of the war the federal agencies affecting the oil business closed shop, and before internal and foreign rehabilitation could get under way, the cessation of heavy movement of petroleum supplies caught the oil industry in the upswing of production, occasioned by new discoveries and a big drilling campaign. Heavy oils were worst affected, Coastal crude dropping from $1.80 down to $1.00 per barrel, rapidly.

But the growing pains caused the greatest trouble. Due to the development work under way in Central-West and North Texas, and discoveries, accompanied by big wells in North Louisiana, overproduction threatened, and then became an accomplished fact. During the latter half of 1918 and the first half of 1919, oil companies with a combined capital stock of more than half a billion dollars were formed, an overwhelming majority of them to operate in Texas and Louisiana. Consequently, the history of oil in 1919 was largely a record of what happened in these two states.

So many booms were under way that a leading lady boarding house boom follower almost had the dithers over whether she should move or stay put!

Help Sought at State Capital

Oil men, dazed by the 80 cents-per-barrel cut in Coastal crude, sought relief at the state capital, invoking an editorial from THE OIL WEEKLY prophesying that if oil men went to the capital for help, they'd pay through the nose.

They did, when a proposal to impose a 2-percent gross production tax came up shortly after. But thanks to work done by a committee of oil men, and some figures

Proper Load Distribution
An even distribution of load over the entire gripping surface of this modern slip is assured because each insert is individually anchored to the slip segment. This equalization of load, plus greater gripping surface of extra long inserts, insures holding of heaviest drill pipe strings with a wide margin of safety. Broad face of inserts eliminates scarring of pipe. A change of inserts permits handling several pipe sizes with same set of segments.
Full details and prices gladly sent upon request
KINZBACH TOOL CO., INC
HOUSTON, TEXAS
California: S. R. Bowen Co.
Export: 74 Trinity Place, N. Y. C.
THROUGH
Kinzbach-Ajax Slips

compiled jointly by THE OIL WEEKLY and the OIL TRADE JOURNAL, and presented to the legislature, it was shown that 1½ percent would raise the funds desired, and the industry was saved a few million dollars before, years later, the 2 percent tax was passed.

A hearing was held at Austin at which independent operators asked the railroad commission, which had been put in charge of oil affairs in the state a short time previously, to require the pipe-line companies to store independent oil. What the independents wanted was a return to the pre-war credit-balance method of buying oil, but the big companies, who were the purchasers, didn't want to return to it.

The meeting in Austin, was the first big hearing held by the railroad commission and the procedure there laid the predicate for the description of a much later meeting which said that a Texas Railroad Commission meeting was a combination of a trial without jury, a revival meeting and a bull fight.

However, in describing the meeting held early in 1919, THE OIL WEEKLY said, "The session was strictly informal, so informal in fact as to interfere with rapid and comprehensive dispatch of business. Witnesses, attorneys, and interested spectators bandied back and forth questions and answers. Everybody answered everybody else's questions and frequently when a witness was asked an embarrassing question, he turned the attention to some other matter by asking a question of his own! Altogether it was quite a democratic affair, in which good humor and comradeship abounded."

"Knee Deep in Oil!"

We have often wondered what some of the witnesses would say if confronted years later with their testimony. At one point the independents objected to a pipeline practice of deducting 2 percent for loss when it was developed that the only loss for which they could be responsible was while the oil was in the strapping tanks. J. Cooke Wilson, who had succeeded W. S. Farish as president of the Independent Producers Association, pointed out that a tank, strapped every four hours, would be credited with 20,000 barrels loss for leakage, etc., in a year's time. The executive of a purchasing company, then on the stand, came back without batting an eye and said he had seen men working knee deep in oil around such tanks.

Following the hearing, the commission issued some rules which were half way satisfactory to the producers, and agreement of purchasing companies to store oil for the producer, as a matter of accommodation, alleviated the situation somewhat.

As the year wore on the railroad commission began to take a bigger and bigger hand in the oil affairs of Texas. New rules were laid down, designed to cut waste, above and below ground, and the first official shut down, by state order came in July, 1919, when for four days Burkburnett had a complete shut down.

Over-Production

Prior to the shutdown, Magnolia Petroleum Company, heaviest purchaser at Burkburnett, had warned against over-production. The warning went unheeded. The drilling report at Burkburnett was so long that it occupied nearly three pages in THE OIL WEEKLY and a tremendous influx of new oil was threatened. When it came, the lines could not handle it, and the railroads, under a federal operation which illustrated how completely governmental operation of a business can mess things up, were not moving the oil they should have moved. The shut down helped some—proration was threatened, and well spacing occupied the minds of all the operators except the promoters drilling on an acre or less.

Time, and over-drilling solved the problem of over-production, and when Burkburnett passed into history she left a record which should have been sufficient to prevent its repetition in East Texas years later. (George Butte of the Texas Railroad Commission laid the predicate for tremendously important action years later, when he said that the commission regarded over-production as a form of waste.)

Ranger, Desdemona and Breckenridge were contributing each an individual boom which will be discussed under another heading.

API Is Formed

It was in 1919 that the American Petroleum Institute was formed. In the beginning it was a sort of closed corporation, the directors being selected, in effect by the directors, all being members of the war-time Petroleum War Service Committee. It was unfortunate that it was not created by the Petroleum War Service Committee issuing a call for oil men to meet from all over the country to participate in its formation. Unquestionably the same leadership would have been chosen but because it sprang, full grown, as it were, from the brow of the Petroleum War Service Committee, itself composed largely of executives of major companies, many independents later failed to identify themselves with it, a failure which was not beneficial either to the Institute or the independents. The A.P.I. has been a great influence for the good of the oil industry and it is a pity that its membership has not been universal.

Nineteen hundred and nineteen was a year of labor unrest, Bolshevik Russia forming a focal point from which radical preachments emanated.

In Chicago, at a meeting of the Indiana Oil Men's Association, Gen. Nathan William McChesney, former judge advocate, general headquarters, A. E. F., was roundly applauded when he said that what this country needed was a return to Americanism.

"It was almost the unanimous feeling of the two million men in the A. E. F. that America quit playing fairy godmother to the world and look after her own affairs!"

New Fields of 1919

Operations in the post-war year were trying to catch up with the discoveries of the previous two years, a task they were to engage in for some time to come. The Central-West Texas area, sometimes referred to as West Texas, in which an intensive development campaign was under way, covered an area 150 by 220 miles. In this, and the North Texas area there were close to 2000 active rigs running before the year closed.

In Oklahoma the Yates pool got an extension — but Oklahoma operators were busy down in Texas for the most part.

The Homer field in Claiborne Parish, Louisiana, to make and break many during the following year, had been opened by a comparatively small well, completed at 1412-15 feet, but before the year closed big wells, 10,000 to 20,000 barrels, were coming in and acreage was going at tremendous prices.

Abroad, the sleeping giant was stirring.

The Tropical Oil Company, (then owned by Benedum-Trees)

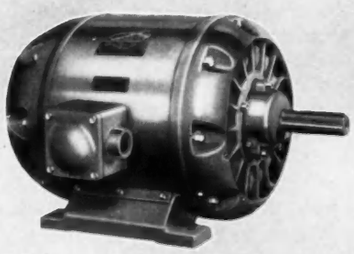
Compare Louis Allis Explosion-Proof motors point by point with any others on the market—

And we are sure you will agree that they are the finest explosion-proof motors ever built —bar none!

One of the twenty carefully engineered features of these explosion-proof motors is shown above—

This is the inside of the endbell — note the extra long closely machined rabbet fits—and the strongly reinforced cast iron construction.

These endbells are scientifically reinforced inside and out to withstand any likely internal explosion, with a safety factor of FIVE!



The very first fan-cooled explosion-proof motor was originated, developed, patented and pioneered by The Louis Allis Co.

As the originator — and pioneer — The Louis Allis Co. has more actual years of manufacturing and operating experience with this type motor than any other manufacturer —

The present Louis Allis Explosion-Proof motor now makes available a new high in electric motor efficiency, dependability, convenience, long life —and SAFETY.

We earnestly solicit your inquiry — write for copy new twenty page descriptive bulletin No. 508E.

THE LOUIS ALLIS CO., MILWAUKEE, WIS.

Everyone is Economizing---that's why operators are installing . . .

Line Scales

Here's our CONRAD Jr.

FOR SLIM-HOLE RIGS

Like all LINE SCALES, the Conrad Junior can be relied upon for accuracy, sensitivity, durability—and economy. It has a 180,000 lb. capacity . . . and is made especially for slim-hole rigs. Same as Conrad Sr. except it has a 10" dial and is smaller and lighter all the way around.

LINE SCALE now offers TEN models

PACKER JUNIOR	40-75,000 lbs.	6" dial
PACKER SPECIAL (Illum.)	100,000 lbs.	8" dial
CONRAD JR. (Illum.)	180,000 lbs.	10" dial
CONRAD (Illum.)	180,000 lbs.	12" dial
PILOT (Illum.)	240,000 lbs.	12" dial
REGULAR DRILLER (Illum.)	360,000 lbs.	12" dial
REGULAR DRILLER (Illum.)	360,000 lbs.	14" dial
SUPER (Illum.)	500,000 lbs.	14" dial
RECORDER (Illum.)	360,000 lbs.	12" dial
RECORDER (Illum.)	360,000 lbs.	14" dial
DYNAMOMETER	1,000-85,000 lbs.	

Illuminated dials optional

Line Scale Co. Inc

907-11 S.E. 29th St. 2-1765 P. O. Box 4245

OKLAHOMA CITY, OKLAHOMA

EXPORT REPRESENTATIVE: Lloyd G. Ensign, 30 Rockefeller Plaza, New York City, N. Y.

had started development on its Demares Concession in Colombia, near Barranca Bermeja, along the Magdelena River, and by the close of 1919 reports credited it with 8000 to 10,000 barrels a day production. This is the property later taken over by Standard Oil Company of New Jersey interests.

The Barco Concession broke into print in 1919 for the first time — the Caribbean Syndicate (H. L. Doherty's Cities Service interest) announcing a 1250-square-mile concession. Newspaper reports credited a 100,000-barrel well to the syndicate on its Barco holdings — actually, the well was a very small one near what is now the Rio de Oro field of the Colombian Petroleum Company, and no oil from it or the wells drilled near it has moved to market.

In Venezuela, South of Colon, Caribbean Syndicate had secured production, reported to be around 8000 barrels.

Production had been developed in Zulia province (near Lake Maracaibo). The stage was being set for the great Maracaibo development.

In Argentina development was confined to the Comodoro Rividavia, still the backbone of Argentina's production.

In Europe rehabilitation of properties damaged by the war was under way except in Russia where the Bolsheviki were still in the process of killing off those capable of operating the fields.

Bad Times in Mexico

Mexico was showing every indication of wanting to destroy the goose which was laying the golden egg. Carranza, more anti-American than ever, had confidently concluded that he could act with complete impunity, as indeed he could, in so far as the United States were concerned. Americans were murdered, some of them openly by Carrancista soldiers, or soldiers supposed to be paying allegiance to Carranza. Oil companies were required to file information on movement of pay rolls to the Tampico fields with government officials who promptly tipped off "bandits" and the bandits insisted that their victims count out the money to make sure that it tallied with the information they had received in advance. Each week brought reports of men murdered. The Mexican government, by taxation and rule showed every desire to take the properties over. Probably they would have, had not a domestic storm been brewing for Carranza.

Oil men going to Mexico after a certain date were refused passports unless they agreed to whatever fate might overtake them, without protest. But despite the perils and hardships development went on — Amatlan was brought in, Tepetate's program proceeded.

The Promoter Gets Busy

The promoter came in for a lot of activity in 1919, as was noted in the statement that stock issues of half a billion were floated in a 12-months' period. Some were legitimate promotions — some — many weren't.

In the order of their magnitude were given the classes of promoters in an article by B. V. Ellzey in The Oil Weekly:

1. Honest but unprofessional.
2. Dishonest and unprofessional.
3. Dishonest and professional.
4. Honest and professional.

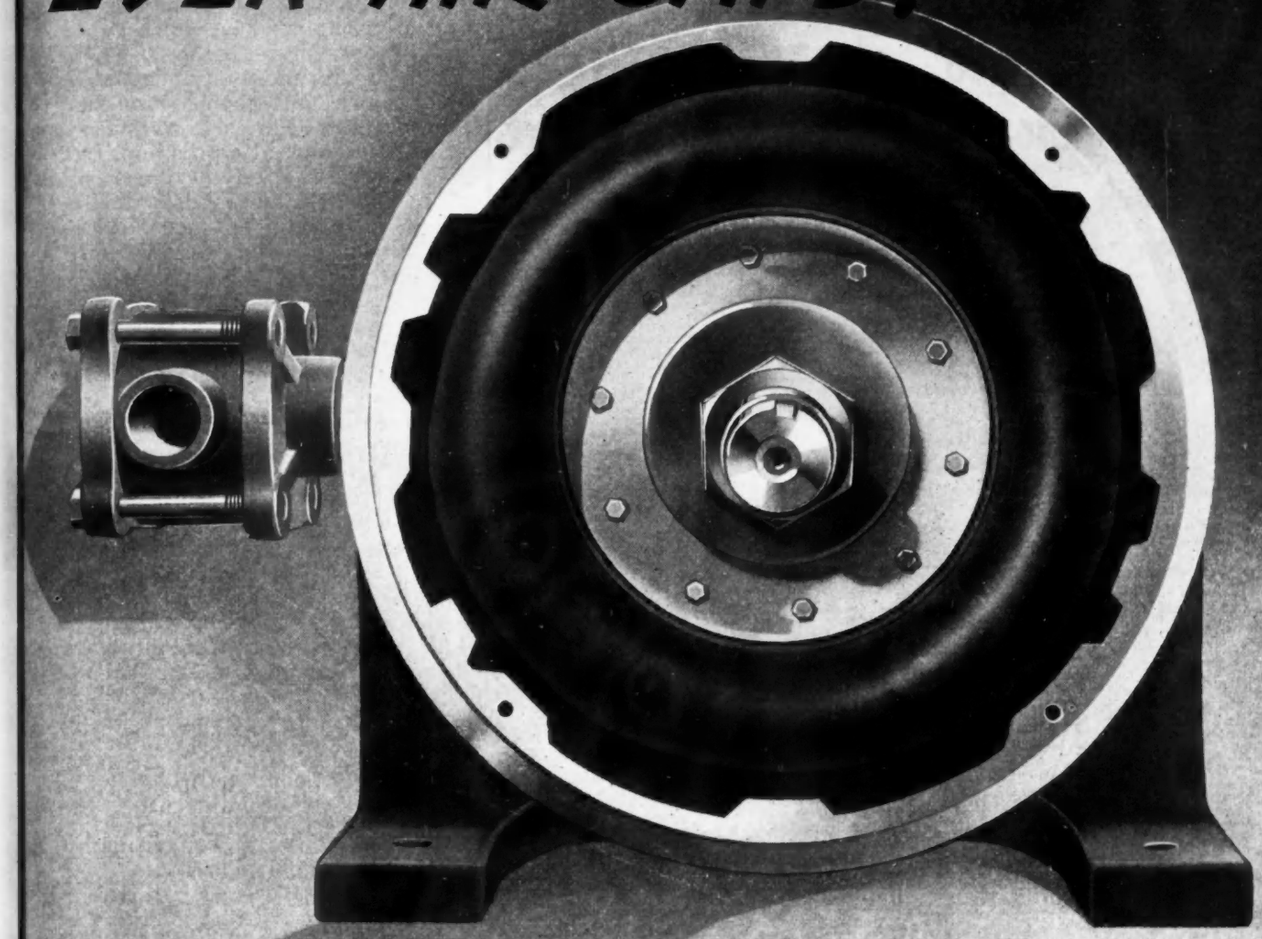
Everybody had the stock-buying craze. A shine boy proudly confessed to the writer that he had bought "ten stocks at 10c a stock!" Stock exchanges sprang up all over the oil country. Stock salesmen at Wichita Falls, selling their stock on the street, so obstructed traffic that the police chief resurrected an old ordinance prohibiting hawking on the streets and cleared them out.

One promoter seriously contended, in an article contradicting a statement made by someone else in The Oil Weekly, that a company, capitalized at $100,000 and operating on a $25,000 one-acre tract at Burkburnett, surrounded by drilling wells, could make a good return for its investors. Another in promoting a refinery, advertised that its 5000-barrel proposed plant couldn't fail to clear $12,500 a day. The carelessness with which the truth was handled in stock prospectuses laid the basis for many a penitentiary term later — but strange as it may seem, the real heyday of the crooked promoter was not to come until years later.

The Texas Railroad Commission turned an unfriendly ear to requests to allow wells to blow "over the top" for photographic purposes, and committees of investors became active in North Texas.

What did this orgy of promotion contribute? On the debit side of the ledger, it contributed a suspicion on the part of many small investors that all men were crooked. It filched from the pockets of the poor a great deal of money. On the credit side it pro-

EVEN AIR GAPS!



Accurately ground stator bore of Louis Allis induction type motors helps to insure even air gaps and precision electrical balance.

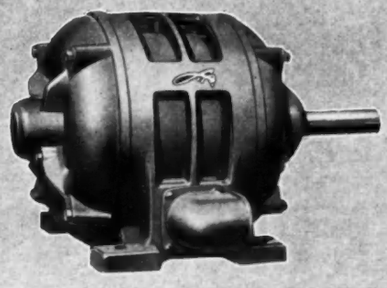
Precision fit, selected ball bearings, help to insure even air gaps.

And these—supported by close tolerance machining of stator housing and bearing brackets—and rigid multiple inspection—*insures even air gaps* in Louis Allis induction type electric motors.

Dynamically balanced, pressure cast one-piece rotors insure mechanically balanced as well as electrically balanced motors.

Firmly anchored, triple insulated stator windings—in a scientifically braced, extra heavy one-piece cast iron housing insures extra rigidity—and smooth flowing, dependable power on the very toughest jobs.

There is a size and type Louis Allis induction electric motor for every industrial requirement.



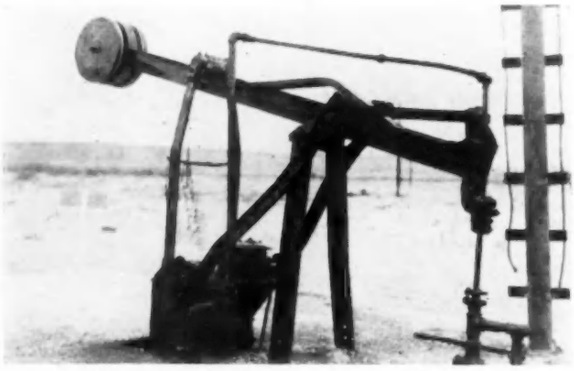
Write for a copy of our new illustrated catalog No. 701

We earnestly solicit your inquiry on your very next electric motor requirement.

THE LOUIS ALLIS CO., MILWAUKEE, WIS.

OIL WEEKLY EDITION

The Old Timers Helped JENSEN BROTHERS Pioneer Pumping Equipment



One of the first vertical motor jobs built—a JENSEN JACK running for the Continental Oil Co., Bakersfield, Texas, 23 miles southwest of McCamey. 5 HP motor. 1200' well. 2" tubing. Hollow rods.

As long as 22 years ago, successful producers were working with JENSEN BROTHERS to cut the cost of lifting oil. This partnership for progress through research and development has never been interrupted. We are today the oldest and largest exclusive manufacturer of pumping equipment in existence.

If you want good management to show maximum results, investigate the JENSEN Pumping Unit. It handles ANY WELL with less expense and aggravation.

The last word in a JENSEN JACK, product of 22 years of experience and close cooperation with production men. It's a 14D Unit in the Long Beach Harbor Field, California. 3000' well. ¾" rods. 2¼" pump. Twenty-two 45" strokes per minute. 13 HP motor.

JENSEN BROTHERS MANUFACTURING CO.

. . . Coffeyville, Kansas, U. S. A.

EXPORT OFFICE: 50 CHURCH ST., NEW YORK CITY, U.S.A.

vided money for development; many investors made money, and out of the ranks of those employed by the promoters have come substantial operators.

The influx of thousands into small cities and towns brought congestion and illness. Homes and office space were at a premium. In Wichita Falls a group of officeless oil men bought out a dry goods merchant to get his store space. The tales told of the prices the oil men made on the dry goods, to move the stock, are rich. If a customer wouldn't buy, he had dry goods thrust into his arms as he was shoved out, to make room.

An advertisement for rooms or apartments in a Wichita Falls paper read:

"We have two children but if necessary can drown them."

The churches took a hand — basement space was offered as sleeping room for transients — tent hotels were put up — in short, all the discomforts and inconveniences of all previous booms were repeated, with trimmings. Dance halls flourished for a while but lawlessness was not organized as it was later in some other fields.

What happened at Wichita Falls and Ranger happened at Desdemona and to a lesser degree in the smaller oil towns — even Dallas and Fort Worth felt the impact.

An Oklahoma visitor in Fort Worth said to a friend, remarking on the number of oil men, lease hounds, promoters, etc. in the lobby of the Westbrook hotel:

"If somebody stuck his head in the lobby and yelled, 'The wagon yard is on fire', most of those in the lobby would break their necks rushing out to save their baggage!"

Big Money Comes to Southwest

In the financial phase of 1919, Standard Oil Company of New Jersey became interested in Texas oil after having been put out years before. Humble Oil & Refining Company, one of the leading independents of the state found itself with a tremendous acreage, a big drilling obligation, a successful company faced with expenditures calling for major financing. So W. S. Farish, who had come to know the Standard group through his association with the Petroleum War Service Board, went to New York. W. C. Teagle, president of Standard Oil Company of New Jersey, was interested and it is reported that he thought as much of the Humble's alert and growing

OIL WEEKLY EDITION

BAASH-ROSS News

BAASH-ROSS TOOL COMPANY • LOS ANGELES • HOUSTON • NEW YORK

MONTHLY BULLETIN COVERING NEWS OF EQUIPMENT AND OPERATIONS IN THE PETROLEUM INDUSTRY

OIL INDUSTRY PUTS STAMP OF APPROVAL ON HEXAGONAL KELLYS

Demand Doubles in One Year!

There is probably no other industry today where equipment is purchased more carefully than in the oil industry. In present-day drilling operations, strict cost-service records are kept on each major piece of equipment. All maintenance costs are carefully noted—operating efficiency and total life hours are logged . . . with the result that, after a piece of equipment has been in use a short time, the operator knows *exactly* what that piece of equipment is costing him per hour of service or per foot of hole.

You can't argue with cold turkey evidence like that. So when you find a greater and greater trend among top flight operators toward a certain type of equipment you can bet your bottom dollar that that equipment is doing an outstanding job... that it is outperforming anything else they have ever used!

And sales curves on the Baash-Ross Hex Kelly show, definitely, that the big trend today in the oil industry is toward Hex Kellys for ALL drilling work . . . a trend so strong that *in the past year alone* the demand for these Kellys has jumped 2¼ TIMES that of the previous year!

That, plus the fact that *every* year since they were first introduced Baash-Ross Hex Kellys have shown a steadily increasing demand, is conclusive evidence that, on a dollar-for-dollar cost/performance basis, there isn't a kelly in the field today that can stand up against the hex kelly for all-around drilling efficiency.

*These figures are based on the widely-used 6" square kelly with 3½" bore vs. the 6⅝" hexagonal kelly with 4½" bore. Because it is the maximum dimension that governs the selection of a kelly size, the 6⅝" hexagonal (across-corner dimension 7⅜") is comparable to—in fact, is actually ⅛" *smaller* in its limiting dimension than the 6" square kelly (across-corner dimension 7⅛"). *In other comparable sizes, hex kellys offer proportionate advantages.*

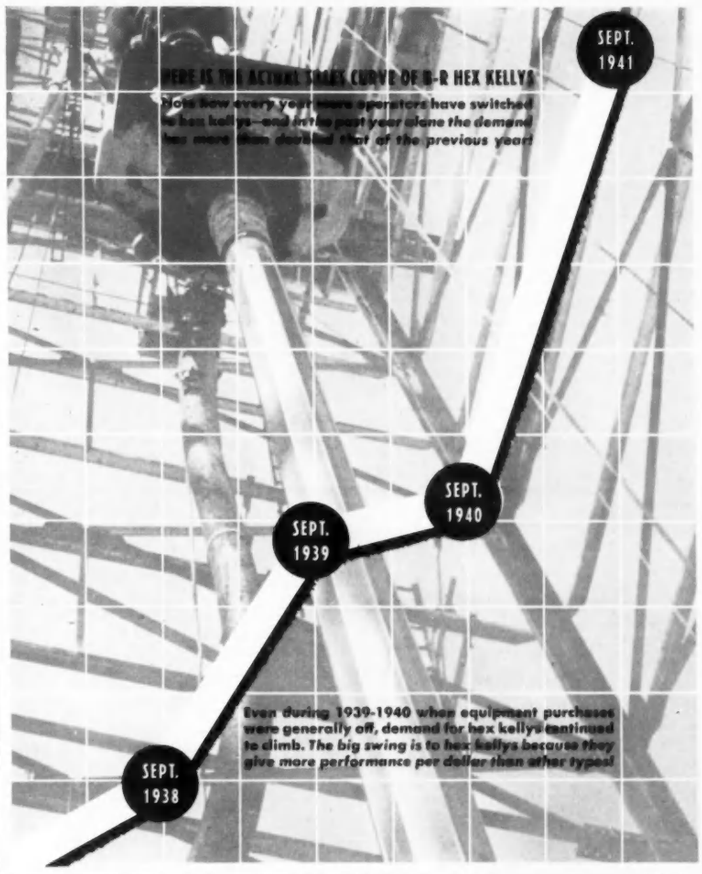
Here are the kelly features that modern operators want — *and are getting in hex kellys. . .*

▸ OPERATORS WANT A KELLY THAT STAYS STRAIGHT LONGER! Oil men tell us that one of their greatest difficulties in kelly operation is maintaining straightness. Generally, kellys become bent while being swung back in the rat hole . . . or through improper support while being hauled or racked. In either case, *hex kellys are 23.2%* more resistant to these bending stresses . . . and stay straighter longer under more severe operating conditions than the comparable size of square kelly.*

Once you have tried Hex Kellys, you'll find, as others have, that the longer kelly life, the lower maintenance costs, the greater rigidity provided by this one feature *alone* are features sufficient to justify a complete switch to hex kellys for *all* your drilling requirements.

▸ OPERATORS WANT SMOOTHER OPERATION AT ALL DRILLING SPEEDS! In modern high-speed drilling, balance is an important factor in a kelly. Because hex kellys are *machined* to shape from solid alloy steel stock, they are held to much closer tolerances than possible in the *forged* construction of square kellys. Coupled with their true concentric bore and accurate joint alignment, the result is almost perfect weight distribution . . . and a smoother-running, better-balanced kelly at *all* drilling speeds. Important in today's high rotational speeds, this feature will be even more important as drilling speeds increase.

▸ OPERATORS WANT MAXIMUM FLUID FLOW THROUGH THE DRILL STRING! What good are today's high volume pumps and full hole drill pipe if circulation is choked in the kelly right where the fluid enters the string? In addition to greater strength, *hex kellys have 48%* more circulation area than the comparable size square kelly—a really vital advantage!*


HERE IS THE ACTUAL SALES CURVE OF B-R HEX KELLYS
Note how every year more operators have switched to hex kellys—and in the past year alone the demand has more than doubled that of the previous year!
SEPT. 1941
SEPT. 1940
SEPT. 1939
SEPT. 1938
Even during 1939-1940 when equipment purchases were generally off, demand for hex kellys continued to climb. The big swing is to hex kellys because they give more performance per dollar than other types!

▸ OPERATORS WANT GREATER TORSIONAL STRENGTH! Since the stress of rotating the entire drill string is concentrated in the kelly, its ability to transmit torque without failure is tremendously important. Because of its shape and greater cross-sectional area, *the hexagonal kelly is 28.6%* stronger in torque than the comparable size square kelly.*

▸ OPERATORS WANT MAXIMUM TENSILE STRENGTH! Besides *rotating* the string, the kelly must also *support* it . . . and here again the hex kelly has an edge, being *1.8%* stronger in tension than the comparable size square kelly.*

▸ OPERATORS WANT MAXIMUM ADAPTABILITY! In the widely varying operations of today the hex kelly is far superior to the square for it can be used under *all* drilling conditions—*both regular and pressure work* —without change. With a hex kelly you are ready for *anything—at all times!*

Before you invest in any new kelly equipment, find out how little it costs, how much it pays, to use Baash-Ross Hexagonal Kellys. Your Baash-Ross representative will be glad to go over the matter with you . . . or write us for further information.

ONE WAY OR ANOTHER it looks like the noisy grounding chain that for years has banged along beneath gasoline trucks is about to disappear. At a recent American Chemical Society meeting researchers from a major rubber company described their newest development—a conductive powder that is simply dusted into the tires to prevent static charges from forming. Is more effective—less troublesome—than chains . . . and is noiseless. (No. B-121)

BAASH-ROSS

AND ON THE HEELS of that announcement another company announced their development —a Static Dissipator made of a 30" length of tough *conductive* rubber to hang in place of the chain. Is as effective as chain, lasts longer, and, of course, is noiseless. (No. B-122)

BAASH-ROSS

A UNIQUE TYPE INCLINOMETER for surveying well bores is a recent development. Operates on new electro-chemical principle which eliminates all clockwork and delicate mechanisms. Yet measurements at several different levels can be made on one run. Can be run in and out at speeds of 1000 ft. per minute and only 45 seconds stop is required for each reading, it is claimed, saving rig time. (No. B-123)

BAASH-ROSS

Further information on above items may be obtained by sending your name, address and number of keyed item on a postcard or letterhead.

UNITED SUPPLY & MANUFACTURING CO.

Manufacturers & Distributors

OIL AND GAS WELL SUPPLIES

CASING, TUBING, LINE PIPE & DRILL PIPE

GENERAL OFFICE: TULSA, OKLAHOMA

★

Branch Stores and Offices:

KANSAS

Hutchinson — Chase

OKLAHOMA

Oklahoma City — Seminole

TEXAS

Houston, Dallas, Pampa, Midland, Odessa

Denver City, Sundown, Imperial, Edna

NEW MEXICO

Eunice

LOUISIANA

New Iberia

STANDARD OIL COMPANY (INDIANA) SERVICE

STANDARD OIL COMPANY

(Indiana)

SENDS BEST WISHES FOR A SUCCESSFUL AND ENJOYABLE MEETING TO MEMBERS OF THE

American Petroleum Institute

attending the convention in San Francisco

organization as he did of the properties. The company issued $8,200,000 worth of new stock which Teagle, (not the Standard, mind you!) bought for $17,000,000. The $17,000,000 was put into the treasury for development and the really great days of Humble Oil & Refining Company began — before the year was out the capital stock was again increased.

Osage Gets Big Play

The Osage, in Oklahoma, was in the limelight in '19. More than a million dollars had been impounded when the case was decided. One Osage auction on Indian lands brought over $3,000,000 — not a record amount, by any means, but not alfalfa.

In July the Texas-Louisiana Division of the Mid-Continent Oil & Gas Association was formed with headquarters at Dallas, and Walter Cline as the first president. Havard Bennett was elected secretary.

The returning soldiers were being banqueted. Tulsa honored J. Arthur Gammon, member of the Foreign Legion, and holder of many medals. L. R. McCollum returned to Rumania, accompanied by his bride who had been a popular oil newspaper girl of Tulsa. Gene Daley went back to Rumania to make things hum. L. P. Garrett of Gulf Production Company resigned, reconsidered, and became chief geologist of the company.

The oil smellers, an unorganized division of the doodle bugs, were busy smelling out oil along the Mexican border.

Colonel C. N. Payne, an associate of Colonel Drake in the early Titusville days, visited Ranger and was quoted as greatly impressed. Walter Teagle, accompanied by Messrs. Hunt and Corwin, visited Humble Oil & Refining Company's properties in which *Mr. Teagle* had bought a half interest. Hunt and Corwin were Standard Oil Company of New Jersey officials, too. The fiction of a private sale was still being maintained, and oil history does not publicly record when Teagle's private interests in Humble Oil & Refining Company were transferred to the Standard Oil Company of New Jersey.

Joseph G. Pogue, now an internationally known petroleum economist and father of the expression "optimum production" finding favor with the Petroleum Coordinator at Washington, broke into print as co-author with Chester M. Gilbert of an article on extracting

the greatest value from crude oil. They thought cracking a good idea. Both were with the U. S. National Museum.

Improved Methods Needed

Evidence that more attention was being paid to methods came from every hand.

Said THE OIL WEEKLY editorially:

"Economical lease management brought about by the further employment of engineering skill is slowly becoming more a practice, and the haphazard methods which characterized our industry in the days when nothing but gushers were brought in, are becoming obsolete. And they should become obsolete.

"Development of oil-field machinery is keeping abreast with science but a trip to the fields convinces one that it has a long road to travel to perfection yet.

"Waste of oil — waste of effort, waste of heat, waste of power, are making inroads on the oil industry that are affecting balance sheets."

First publications of discussions on standardization of equipment, came as a result of suggestions made at a Lucey Manufacturing Corporation meeting at Chattanooga. Captain J. F. Lucey, a shrewd merchandizer, invited a group of oil men to attend the annual conference of his supply organization at the home of his principal plants in Chattanooga. The meeting developed into a discussion of standardization which contained the germ later to develop into an industry-wide campaign.

A picture of the need for the improvement in methods is shown in an official order in Texas outlawing earthen storage for light oil, and the outlawing of the gun barrel "oil and gas separator" which was no separator at all, and the beginning of scientific oil and gas separation.

Recognition of the engineer was made in a special section of the third anniversary issue of THE OIL WEEKLY — a 250-page journal, which insisted on publication of statistical data on an October to October basis, instead of a calendar year basis, because it had its birthday in October. And ironically enough a four-color picture of an oil-field fire was the marker for the engineering section. The engineering data consisted of a most interesting article on fire fighting, in which directional drilling, to kill a fire in 1911, was reviewed in detail, an article recommending completion and production practices, records of drilling costs, etc.

It was recorded that at that time California operators were hard-surfacing their underreamers by welding cast iron on the cutters with a blow touch. Pumping units were advocated in rotary areas, instead of the standard rig, and the then current practice of steam pumps all over the field, with great waste of oil as a fuel, was attacked by an author who recommended the use of gas or oil engines.

Housing began to receive a great deal of attention at the hands of the oil companies. Living conditions were to be studied by the various associations with the idea that the companies must improve them.

The growing pains of 1919 were to bear fruit in many improvements in later years.

1920 . . . High-Price Year

NINETEEN hundred and twenty has gone down in history as the year of the highest prices since the oil industry assumed nationwide proportions, yet the year was marked not only by scarcity of petroleum products, but an over-production of crude oil in spots, as well.

The government was still exercising control over the railroads and if an opponent of government control needs any arguments, he can find them in the records of 1920 when embargoes tied up precious train loads of gasoline, when oil-country equipment couldn't get to the point of consumption because the railroad administrator hadn't planned it that way!

From a standpoint of general interest, the high-lights of the year were to be found in the market. Production wasn't doing badly, but post-war rehabilitation pushed consumption to greater heights than anyone had anticipated. The year before had been marked by a sensational drop in Gulf Coast crude on the grounds that this crude was used largely — in fact almost solely — in filling demands of the fuel oil market. Yet before 1920 was well underway it was discovered that there wasn't enough fuel oil and the price of Gulf Coast crude skyrocketed, in the face of heavy importations of Mexican crude. One wonders where the long range economists were in those days. Walter Teagle, president of Standard Oil Company of New Jersey, delved into the realm of prediction on what would happen during the following year, as is mentioned later in this history, and was found to have no better insight into the future than anyone else.

But consumption did increase beyond all anticipated bounds, just as production, under the stimulus of high prices, was to increase during the following year.

Price Peak

Recitation of the various crude-price increases would be boring, and the story can be told simply in the words that the high of the year saw Mid-Continent crude selling for $3.50 per barrel, Gulf Coast selling for $3, and Pennsylvania proportionately higher. Gasoline, too, was scarce and its high point came when train-loads of gasoline from Mid-continent refineries moved to California at a price of 25 cents per gallon at the refinery!

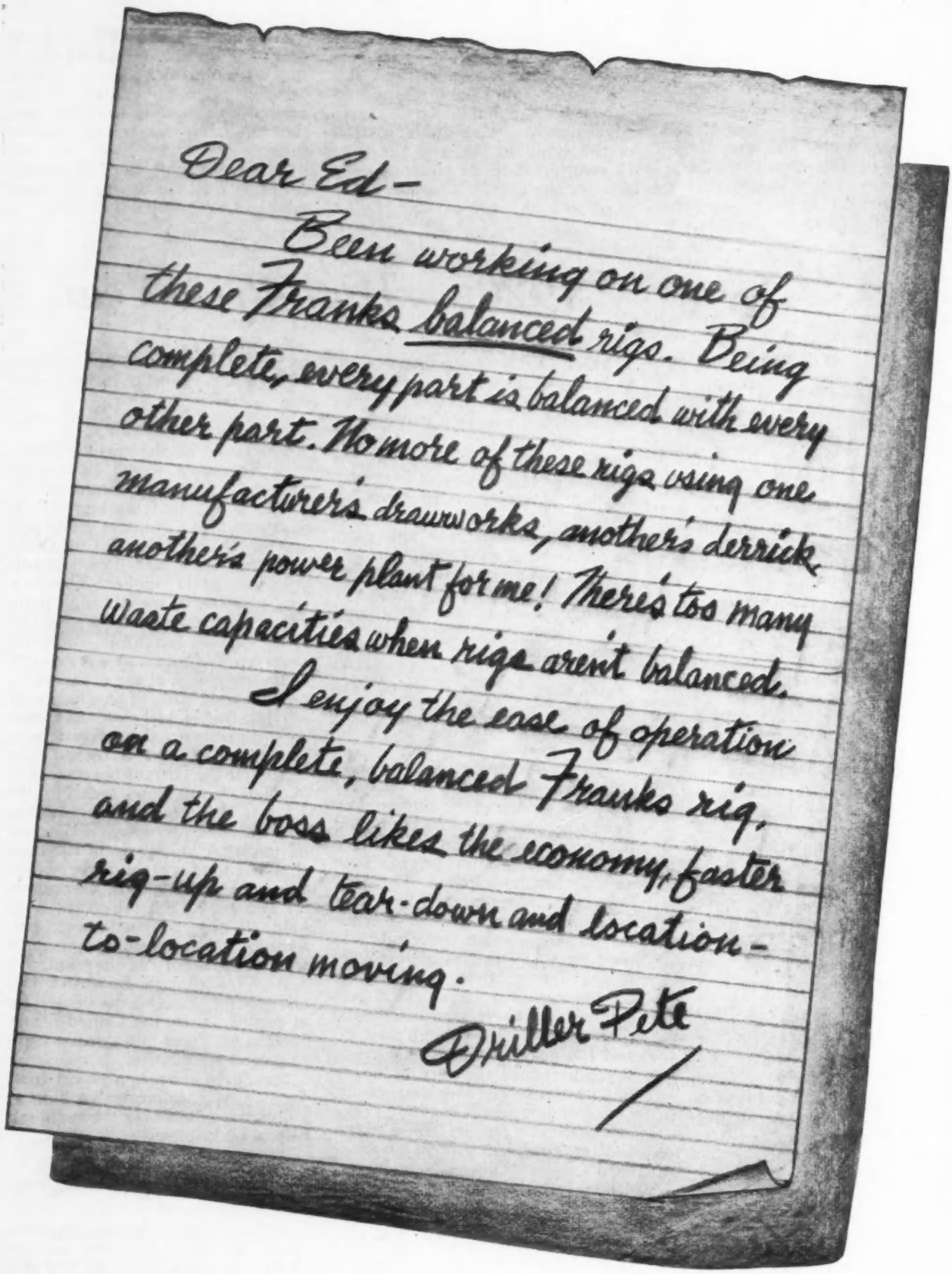
Solid trainloads of gasoline were moving from Oklahoma and North Texas plants to the Atlantic seaboard and in light of recent comments on the current movement of gasoline from those areas to the East, it is interesting to note that 45 days was the average time required for a round-trip in 1920 and that a round-trip in three weeks was considered speedy movement. At one time 8300 tank cars were held up by congestion or embargoes, cars of gasoline consigned to "hot spots" of consumption.

And, as though it wasn't bad enough for gasoline to be selling at record prices, the United States Bureau of Mines laid down a complaint on its quality.

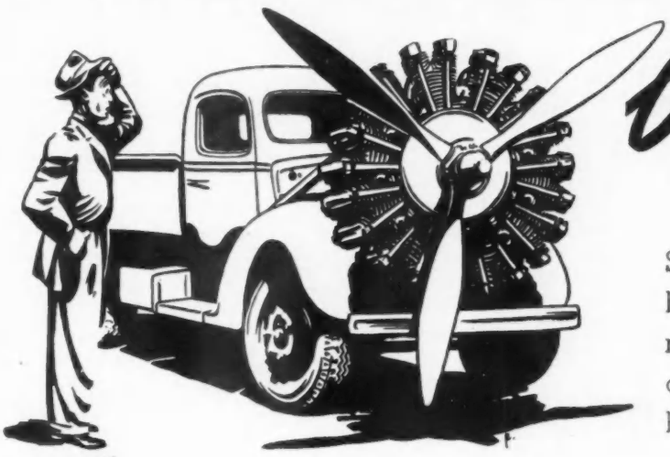
Strangely enough, a report from Japan that gasoline was selling at a dollar a gallon over there did not help a bit!

Navy Complains

The U. S. Navy, on calling for bids on more than three million barrels of fuel oil and distillate, found the oil companies on the West Coast and the Gulf and Atlantic Seaboards unwilling to quote on such a quantity, and the prices on what was quoted ran as high as


Dear Ed-
Been working on one of these Franks balanced rigs. Being complete, every part is balanced with every other part. No more of these rigs using one manufacturer's drawworks, another's derrick, another's power plant for me! There's too many waste capacities when rigs aren't balanced.
I enjoy the ease of operation on a complete, balanced Franks rig, and the boss likes the economy, faster rig-up and tear-down and location-to-location moving.
Driller Pete

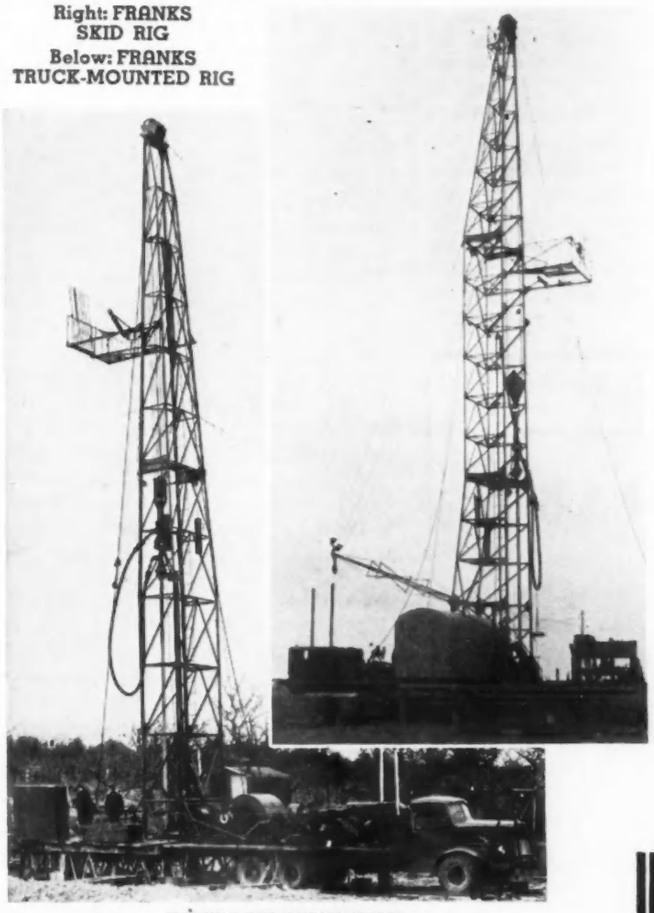
POWERFUL! Yes- but Costly!



Some drilling rigs are like an automobile would be with a 400-H.P. airplane motor. Lots of power, or maybe too big a draw works for the engine. But not balanced.

Frank's *Balanced* portable rigs effect *Greatest Economy*-

Right: FRANKS SKID RIG
Below: FRANKS TRUCK-MOUNTED RIG



Franks truck-mounted and skid portable skid rigs are the most complete, balanced and portable units on the markets. All essentials — derrick, draw works, power plant, pumps, self contained derrick raising and lowering device, crown block, stacking board, stand pipe, air chamber, swivel, rotary table — are integral parts of the unit built to operate with each other and unitized for fastest rig-up, tear-down, and location-to-location moving. Derrick on truck-mounted folds down over truck for moving. Skid unit derrick can be moved in one or two pieces.

Franks Rig Drilled 33 Wells, 105,000 Ft. in One Year

It takes a balanced rig to turn in the performance of one Franks rig which in 11½ months in the Texas Panhandle completed 33 wells for 105,000 feet of hole. This includes all rig-up, tear-down, moving, down time, and drilling from the grass roots down in rock bit territory.

See Franks representatives or write for information.

FRANKS REPRESENTATIVES:

Export Office: A. V. Simonson, 149 Broadway, New York, U. S. A.
Texas, Gulf Coast, Arkansas and New Mexico: R. M. White, Neil P. Anderson Bldg., Fort Worth, Tex.
Oklahoma, Kansas, Rocky Mountains: W. R. Brown, Box 3218, Tulsa, Okla.
Illinois Basin and Michigan: Glen L. Wigton, Box 26, Vincennes, Ind.
California: Hillman-Kelley, Inc., 2441 Hunter Street, Los Angeles, Calif.

FRANKS MFG. CORP.
WELL SERVICING AND DRILLING UNITS

P.O. Box 3218 **Cable Address: FRANSI**

TULSA, OKLAHOMA, U. S. A.

$3.25 per barrel f.o.b. Indian Head, Mass., $3.86 at Washington, with diesel oil at 12½ cents per gallon at Norfolk and Hampton Roads. This was for a product which had been offered in unlimited quantities at $1.55 to $1.87 the year before. Josephus Daniels, secretary of Navy, complained to high heaven at the new prices. In an interview with the writer he showed an ignorance of what was happening and a suspicion which lead him to threaten a return to the fuel administration days of the war. Mexico was in part the cause of the naval fuel situation because salt-water had begun to make its appearance at Panuco, and Carranza was putting every obstacle possible in the way of the oil industry in Mexico.

The U. S. Shipping Board, later in the year to go through a scandal involving theft of fuel oil on the part of its employes, did not like the bids it got either and started doing something about it in a drastic manner. Congressional objection and the bad odor caused by the scandal, however, prevented the shipping board from consummating an arrangement with a private refining company under which the government was to finance a refinery at New Orleans. Secrecy maintained on the deal came in for a great deal of criticism.

Specifications Changed

The shortage of the oil desired was so real that THE OIL WEEKLY editorially urged that the navy revise its specifications. This was done shortly after and when new bids were called for there was plenty of oil offered, and at a substantially lower price, the previous specifications having tuned out much of the supply which had been available.

Fifteen Days' Supply

Because of the high prices and the dwindling gasoline stocks, it became a popular thing to demand an investigation of the oil business. Gasoline stocks dropped during the year to a point where there was only 15 days' supply in the country. The Interstate Commerce Commission, on instructions from the Congress, investigated the oil business and reported that the law of supply and demand was still operating, giving the oil industry a clean bill of health on profiteering. Dissatisfied, Congressman Dwyer of Missouri, who had instigated the probe, asked Congress to make one of its own.

Manufacturers' associations railed at what looked like profiteering to them. Out in California a Federal grand jury questioned oil men in connection with the charge that there had been collusion on prices, and reported no evidence of such a procedure.

Prices of *all* commodities were high, due to poor railroad management on the part of the government. Pipe was scarce at the points where it was needed, and plentiful at the mills, but bootlegging of pipe on the part of some skyrocketed prices to the point where the operators in Wyoming met and signed a resolution not to pay more than the mill price plus freight for casing.

Solutions Offered

An advertisement in THE OIL WEEKLY in August estimated that there were unfilled orders for 15,000,000 feet of tubing on the books of the mills. Tim Spellacy, out in California, offered as a solution to the problem the drilling of 100,000 wells, and proposed that duties on foreign pipe be eliminated. But the trouble was not so much a pipe shortage as the difficulty of getting the pipe to the location. Finally, after the middle of the year the I. C. C. petitioned the release of 10,000 open cars for movement of pipe and with this the pressure was relieved. One company pictured a solid train of 32 cars, leaving its plant in the east, loaded with all kinds of oil equipment, headed to the Southwest.

High Cost of Living

Labor naturally was disturbed by the high price of living. It is now somewhat amusing that the directors of the Texas-Louisiana Oil Producers Association met to consider the high cost of living for their employes and appointed a committee to discuss prices of clothing and food with the merchants in the oil fields. We do not know whether or not the merchants reminded the producers that they were getting about three times as much for their oil as they had been getting less than a year before, but in any event, the committee recommended a general raise for oil-field labor which was immediately granted by all operators.

As the year wore on dangerous effect of high prices of crude began to be felt in production, and in June all previous records for June production were broken.

By December there was a threatened over-production. That month Prairie Pipe Line Company led a movement to reduce pipe-line runs by 30 percent, in an effort to stave off a price reduction resulting from local over-production.

Truly 1920 was a year of ups and downs, with the close of the year forecasting trouble for the producer who had had his day in 1920.

Complaints Against England

One of the important subjects of the year in legislative halls was the complaint that our recent allies, the English and the French, particu-

Serving

TEXAS *and* **LOUISIANA**

•

ALLEN & MORRIS

DRILLING CONTRACTORS

Operating both light and heavy Steam and Diesel rigs

Alamo National Building

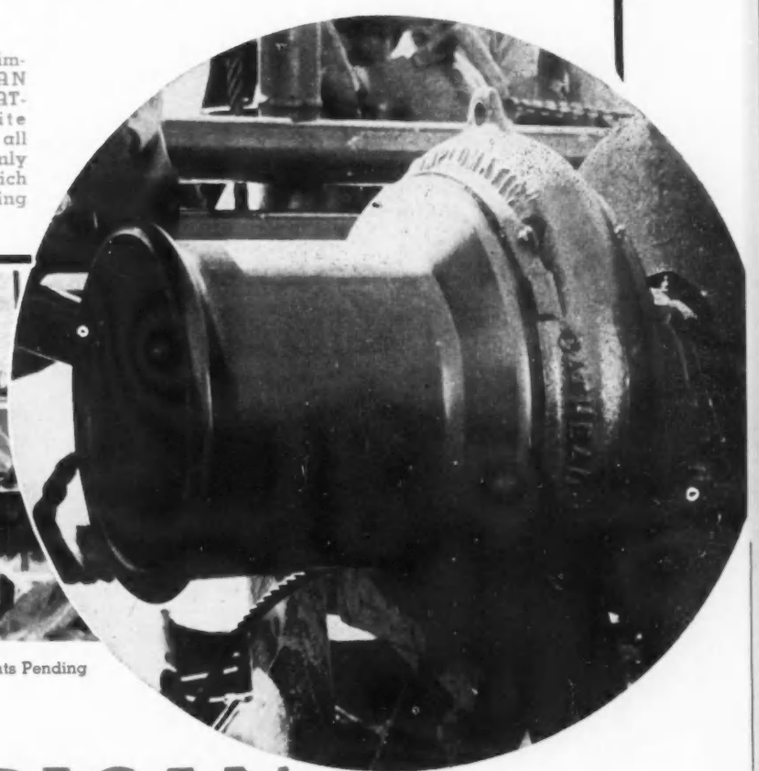
SAN ANTONIO

FRANKS USE AMERICAN!

American "Simplomatic" Catheads are used on almost all FRANKS rigs!

OUTSTANDING rigs deserve outstanding catheads. That's why we're proud to say that AMERICAN "SIMPLOMATIC" CATHEADS are virtually standard equipment on all FRANKS rigs. Knowing the high standards FRANKS have maintained during their 10 years of growth, we feel this is a real compliment to AMERICAN CATHEADS. More proof that for perfect performance, *it's AMERICAN every time!*

Light, compact, simple, the AMERICAN SIMPLOMATIC CATHEAD is a favorite with operators all over the world. Only seven parts, of which very few are working parts.



Patents Pending

AMERICAN IRON & MACHINE WORKS CO. OKLAHOMA CITY U.S.A.

AMERICAN
IRON & MACHINE WORKS CO.
OKLAHOMA CITY, OKLAHOMA

Houston and Monahans, Texas
Harvey and New Iberia, Louisiana; Great Bend, Kansas
Export Office: 420 Lexington Avenue, New York City
California Representative:
Hopper Machine Works, Inc., Bakersfield, California

Gas and Oil

Of first importance to drillers, operators or manufacturers is a dependable supply of good fuel —low in price. Natural Gas is the answer to this problem. It gives you more efficient, economical power for either steam or Gas engines . . . it gives you good, clean GAS at all times. Yes, purchased Gas is your best bet—it makes production costs fall and sends profits zooming.

Use GAS—
A Product
Of Your Own
Industry

Call on us to help you with your fuel problems. We can supply you with the best fuel on earth at the lowest rates possible.

OKLAHOMA NATURAL
Gas Company

larly the English, were engaged in an effort, which in some instances amounted to conspiracy against Americans, to grab up all possible foreign concessions. In one instance, the San Remo agreement signed by Lloyd George of England and A. Millerand of France, amounted to an out-right conspiracy to cut out all other nationals (including Americans) from Mesopotamia (now Iraq) and save the oil there for themselves. Bainbridge Colby, Secretary of State, wrote England a note which had a tone reminiscent of the notes the United States had sent her late enemy, Germany. He unmasked the deal and in plain terms pointed out that whether the United States was a member of the League of Nations or not, she had had some part in the recent war, and did not propose that her nationals should be discriminated against. This note later resulted in a group of American companies having a share in the Iraq concession, a share amounting to somewhat less than 25 percent. In the light of the fact that America had been an ally, that she had loaned England and France huge sums for rehabilitation following the war, the attitude of the two nations caused great resentment in America, and in Congress, Senator Gore of Oklahoma offered a resolution, which passed, investigating the attitude of England and France toward American oil companies in their empires and colonies. Threats of reprisal against Shell, which had heavy investments in California and the Mid-Continent, were freely made. As a result of this attitude, which was continued under the Harding administration soon to follow, Americans were granted some opportunities they had not had previously.

Mackay's Statement

At a particularly inopportune time, from the standpoint of England, Sir Edward Mackay, who had played a big part in the World War with America as an ally, came out in a statement in which he boasted that English capital had the jump on American capital in oil affairs abroad and indicated that when America started to buy from England she would pay through the nose for oil. His article crystalized action and really proved of great help to American oil companies abroad by reason of the reaction to it.

Senator Phelan proposed a government-backed oil company to op-

erate abroad, but his proposal did not receive favorable action, in part because American oil companies felt that they could compete if given an even break, and because some foreign governments had policies opposed to granting any concessions to other governments or governmental controlled companies.

It was while California was curtailing her export contracts, and talk was being indulged in on congressional action against all exports, that President Wilson, early in the year, signed the oil land lease bill which threw 6,700,000 acres of public lands open to the drill.

API First Meeting

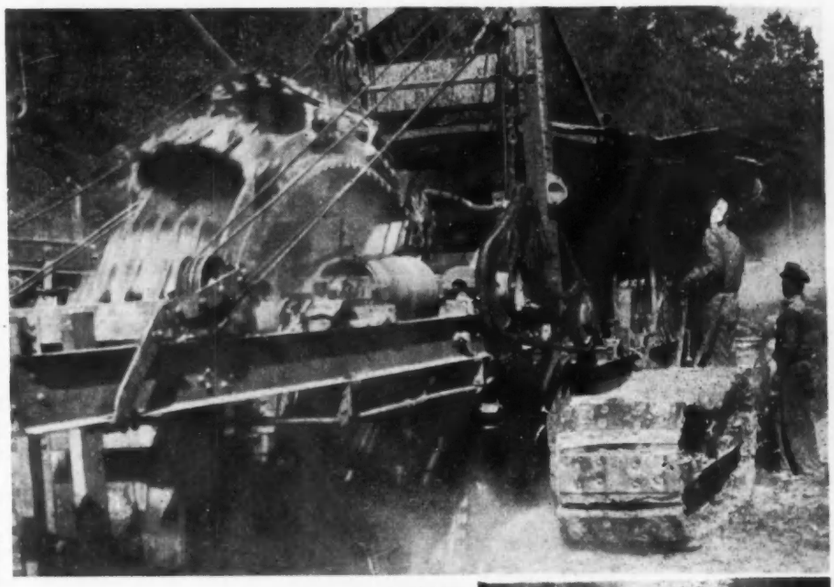
In November, 1920, came the first annual meeting of the American Petroleum Institute held at Washington. Washington was selected because the directors wanted the first meeting to be held under the nose of the government, as there were certain matters pertaining to oil which the Institute wanted called to the attention of the government.

The first annual meeting presented such a galaxy of stars as speakers as the oil industry had never seen gathered in one spot before. Under the able direction of R. L. Welch, then general secretary, the meeting was perfectly planned and perfectly executed, setting a new high not only on programs, but the manner in which they were publicized, a perfection which other oil associations have since profited from.

Tom O'Donnell, the wheelhorse of the oil production division of the U. S. Fuel Administration during the war, was president. O'Donnell always knew what he wanted to do, but when he stepped on toes in doing it, he had an Irish smile which made the experience of being stepped on a pleasure. The Petroleum War Service Advisory Board was there, unanimously, as I recall it.

Teagle's Prophesy

American oil companies were still fretting under the handicap imposed by Britain in foreign operations, and the foreign situation called for talks by Walter C. Teagle and George Otis Smith, director of the United States Geological Survey. At an "off the record" speech later in the meeting, Teagle made his famous prediction on no drop in the price of crude, a prediction which was shortly after to label him as a much better admin-



SPEED

When the Going GETS TOUGH!

SPEED, regardless of how big the pipe or how rough the terrain, is the aim of every man on a WHITAKER job — an aim second only to dependable, first-class construction. That's why experience and the latest equipment has set recent records: 4 miles of 18" firing line in 7 hours 45 minutes . . . 33,000 feet of 6" stovepiped in 7 hours 15 minutes . . . 111 miles of 8" in 22 working days. Ask anybody for whom WHITAKER has layed a line—and they'll tell you, "You can depend on WHITAKER to push a job through!"

PICTURES: Top—Cutting a 36" ditch in Louisiana; No. 2—Laying 18" line through Louisiana swamps; No. 3—8" river crossing in Oklahoma; No. 4—Electric welding 18" pipe in Mississippi; No. 5—10" sidebend in Kansas (average of 8,000 feet daily)

O. C. WHITAKER CO.

Pipe Line and Electric Welding Contractors for Oil, Gas and Gasoline Pipe Line Construction and Reconditioning

General Offices:
Dan Waggoner Building
FORT WORTH, TEXAS

Over 20 Years Continuous Pipe Line Experience

Office and Warehouse:
2441 East King St.
TULSA, OKLAHOMA

istrator than he was prognosticator. F. R. Kellogg, representing the Doheny interests in Mexico, debated with Roberto V. Pesqueira, reported to be a representative of the Mexican government. A few weeks later, it developed that the Mexican government claimed that Pesqueira had no official status under the then new Obregon administration.

So much valuable material developed in the various addresses and discussions that the oil papers were printing portions of the papers months afterwards. The attendance was placed at 500 and it embraced largely the representatives of the bigger companies, many of the independents still crossing their fingers on the A.P.I.

That the attention of official Washington had been called to American oil problems discussed at the meeting, was later to become apparent.

Out in the Oil Country

In the record of 1919 was a report of the big wells at Homer, Louisiana. Then it was, and sometimes later, that if an operator didn't have at least a flock of 10,000-barrel wells, with a well or two of twice that production, he wasn't in the Homer social register. Oil companies were formed and large amounts of stock placed through New York brokerage houses, based upon the big wells at Homer. Then in January, 1920, salt water began its appearance. THE OIL WEEKLY printed a story that the deep sand at Homer was afflicted by water, and reported production, before and after, of some of the wells. The stock market took a tumble all out of proportion to the value of the news, because the shallow sand at Homer continued to be a prolific source of oil and one company, Gilliland Oil Company, in the deep sand, continued to get big wells. Homer's production was a series of ups and downs. It passed the 100,000-barrel mark and dropped to 53,000 before the year closed.

California Opens Up

California saw the opening of Huntington Beach and before the year was out Standard Oil Company of California's Bolsa Chica well, on the properties of the Bolsa Chica Gun Club, at Huntington Beach was rated as the biggest well in California, its flow increasing until it was making 20,000 barrels per day.

Oklahoma opened production in the Mississippi lime in the Osage with a 14,000-barrel well. Old fields saw extensions, and the Hewett pool got a big play.

An 1800-barrel-initial producer opened the Cat Creek field in Montana.

New Mexico was still getting a big wildcat play with nothing to show for the 40 rigs running, except information. Arkansas, through Constantin's big gas well, attracted enough attention to draw K. C. Heald, of the Bureau of Mines staff, down there for a report — which was favorable toward drilling in several places in the state.

Kansas saw the opening of the Urschel pool.

Development already started in Central-West Texas was still in full swing. Breckenridge Townsite was getting good wells. Extentions were still reported at Ranger. First evidence of oil in the cretaceous in Texas was found in a well drilled by International Oil & Gas Company north of Eagle Pass.

In South Texas, West Columbia furnished the fireworks, in July, when The Texas Company brought in Abrams 1, an extention, which had an initial production of more than 20,000 barrels per day. A month later it was making 26,000 barrels, and by the close of October it had produced more than $4,000,000 worth of oil and was still a good producer. It started a rush down to the sand in an area believed to have been the most prolific found to date in the United States.

December has always been a lucky month in the bringing in of new areas in Texas, as witness Ranger, and December, 1920, was no exception. At Mexia, on geological advice given by Julius Fohs, now president of the Fohs Oil Company, Humphreys Oil Company drilled one foot into the Woodbine sand and the well began making heads at the rate of one each 36 hours. Texas operators had always been a little leery of Woodbine production and the usual rush on the part of the major oil companies to get acreage was delayed — greatly to the expense of the majors, because months later a development began which was to be as hectic as any the Southwest had seen.

Abroad in 1920

Abroad, as an editorial in THE OIL WEEKLY said, "Eyes are turned southward" to South America where geological crews were combing the jungles and the llanos. Charles Kirk, who had headed one such party, returned to the United States with a glowing story of possibilities in Colombia, where laws and people were friendly, he said.

Venezuela was the goal of large numbers of geologists. Sinclair was prospecting in Costa Rica. The same company had secured the Velentine Concession, non-productive to date, in Panama.

Taking the prize for completion of a well at furthest point from market, Imperial Oil Company got a producer in its well near Fort Norman, inside the Arctic Circle, 1250 miles from a railway.

Japanese reported that they had completed a "1700 gallon" well in Formosa, but said that the well did not hold up.

As has been indicated, the politicos were squabbling about Iraq —but geologists of all nationalities were on the ground, the Americans being handicapped by the ground rules laid down by the British.

Mexico in Limelight

If 1920 was a year of contrasts in the United States, it was of even greater shifts in Mexico. At the beginning of the year the lives of oil-field workers, particularly payroll men, were not safe outside the confines of Tampico. Before the year closed Carranza was out as "first chief," assassinated by a former officer in his own army, Obregon, a level headed general, becoming president. In the oil fields the revolution had no repercussions, except that banditry lessened somewhat and Americans were treated with more consideration. But after the revolution order was restored and payrolls were safe. There are some unkind enough to say that with the removal of the Carrancista officers at Tampico, the bandits no longer had inside information on payrolls.

In the Panuco pool the old wells of heroic size were being whittled down by salt water. Chinampa's play before the year was out was affected by salt water, and Zacamixtle was just in the first stages of development—with 60,000-barrel wells common. But Mexican exports in September had reached a new peak of 17 million barrels for the month. Deep-sea loading lines were helping to move the production rapidly, and the demand seemed insatiable.

In Africa, Anglo-American Oil Company reported that it had received a concession on all of the province of Harrar, in Abyssinia,

ROEBLING *Looks Ahead*

TO A SECOND CENTURY OF PIONEERING!

The past—despite its achievement—is *behind*. The opportunity to continue to grow, to further achieve, to serve industry in even greater measure, is *in the future*.

» » That is why Roebling—at the celebration of its 100th Anniversary—LOOKS AHEAD—looks ahead with confidence to new opportunities to Pioneer in Wire—new opportunities to develop the finest wire and wire products that aggressive research, unequalled experience, and the most modern of manufacturing facilities can make possible.

JOHN A. ROEBLING'S SONS COMPANY

TRENTON, NEW JERSEY

the concession to run 50 years with a 5-year development clause. The concession expired for lack of development.

Modernization of Methods

Modernization of methods was moving along at a great pace in 1920. Consideration of deeper drilling was general as equipment was being steadily improved. At Bartlesville, Bureau of Mines Engineer Wiggins was conducting a study of steel storage which was to make his name known throughout the industry. Drilling costs were still high, it costing $44,650 to drill a producer and $34,800 to drill a 3000-foot, dry hole in the Rocky Mountain area.

Frank Smith, a driller for Barkley & Meadows, a Texas drilling contractor, set a record when he broke out 57 tool joints in 46 minutes, and Jerry Connors, a lease foreman in Kansas provided a lot of copy when he pulled 1750 feet of rods in 25 minutes and as much tubing in 1 hour and 20 minutes, using a tractor and a winch to do the job.

Real Men Then

Those were the days of real men. A news item records the seventieth anniversary of I. B. (Dad) Speicher, scout for Kay County Gas Company, and told how, the previous winter, when the snow had piled into such drifts in Oklahoma that he could not use his car, he had walked 15 miles through the snow to "get the dope." A man.

A. W. Ambrose, (now a vice president of Empire Gas and Fuel Company) then superintendent of the United States Bureau of Mines at Bartlesville, and scheduled to succeed J. O. Lewis as chief technologist of the bureau before the year was out stressed the need for more trained production engineers in the oil business. Said Ambrose, speaking of the ideal engineer, "He should be a mining, civil or mechanical engineer with a knowledge of geology and petroleum." Such a man, indicated Ambrose, would have a real future in the oil business.

Nineteen hundred and twenty was the year when Bill Smullen, now of California, resigned a job as vice president of Humble Oil & Refining Company to be the first major oil company high executive to go to South America. Fever got him and months later he returned, almost a skeleton.

It was in 1920 that Roy Jones' Panhandle Oil & Refining Company got such a big gasser in the South Bend area in Young County, Texas, that the noise of it burst the eardrums of the rabbits in the area, enabling roughnecks on the rig to slip up on them from behind! Or so they say! And drillers of a wildcat well in West Texas, on returning to the cable-tool rig after a heavy blizzard, had to drill out 196 feet of dead goats!

1921... Hectic Year

THE oil industry may go through another year as hectic as 1921 was, from the standpoint of crude oil prices, but I doubt it. There have been years, of course, when there were tremendous price depressions, or increases, but 1921 had them both. The year opened with Mid-Continent crude selling at $3.50 a barrel, Pennsylvania crude at $6.10, Gulf Coast crude at $2.50, and California at $2.95. The price reductions started in late January, and came so fast that twice there were two cuts within a week—and the cuts were not trivial, either. By the time the "low" of the year was reached, the oil which had been selling at $3.50 per barrel was down to $1, Gulf Coast had dropped to 70 cents, Pennsylvania was down to $2.25 and the only reason California was not off more than 50 cents per barrel was that there was a threatened shortage there.

In September the upturn came and the year closed with the price more than doubled over the low of the summer.

This shift in price did not occur without repercussions, and much of the activity of the industry during the year, insofar as the producer was concerned, was spent in bemeaning the buyers, promising to curtail, and wondering what was wrong with an industry in which such a thing could occur.

Frankly, we, too, wonder about it, still. In one part of the nation Mexico was given as the reason, that country pouring millions of barrels per month into the United States, where only the year before there had been a great shortage of fuel oil.

Actually, a glimpse at other commodity prices reveals that 1921 was a "depression" year, and of course that explains a great deal. The Mexican situation explains some more, even if The Lamp did, in an article late in the year, claim that Mexican imports had little to do with the price of oil. We prefer to think that the imports did have an effect other than to put the entire blame of the cut in prices on the depression, because the shoulders of the depression were hardly large enough to carry all the blame. There were other reasons, of course. The oil industry always seems to be doing the wrong thing from a crude standpoint, and production was moving upward, wells by the thousands were being drilled, and the price of the year before now seems to us to have been precariously high. In an editorial about the time the bottom on price was reached, THE OIL WEEKLY urged drastic curtailment of drilling as an aid to the toppling price structure, and then added the word of warning to the purchasers that sometimes too much of a good thing was more than enough, intimating that American operators might try to bring some pressure on Mexico to turn on the heat with heavy export taxes. How well founded this prophesy was will be revealed in another paragraph.

Curtailment Efforts

Naturally, the small producer complained of the drastic cuts in the price of oil. But they also manfully tried to curtail operations. The Federal Trade Commission, being asked as to the attitude of that body in regard to agreements to curtail drilling, said that much as its heart might bleed for the independent oil man, if he entered into agreements with others to cut down drilling to help the price of oil, and the Federal Trade Commission heard about it, the commission would do its duty—in other words, prosecute.

So nobody agreed, but everybody advised everybody else that it ought to be done, and many producers did curtail.

Of course the price of refined products took a beating, as is usually the case in a depression year, but refined prices did not take a proportional drop with crude—nor did they go up proportionally when crude started rising in September.

It was ironical that various state legislatures chose the mo-

ment when prices were falling like autumn leaves, to propose increases in gross production taxes, and as we remember those days, the oil man could take his choice between talking about low prices and high taxes.

Steel prices started dropping early in the year, and one large manufacturer of oil-country equipment announced in an advertisement a ten-percent cut in the prices of its products. Salaries went down too, and in California, reductions in oil-field wage scales probably had something to do with a strike which at one time grew to serious proportions.

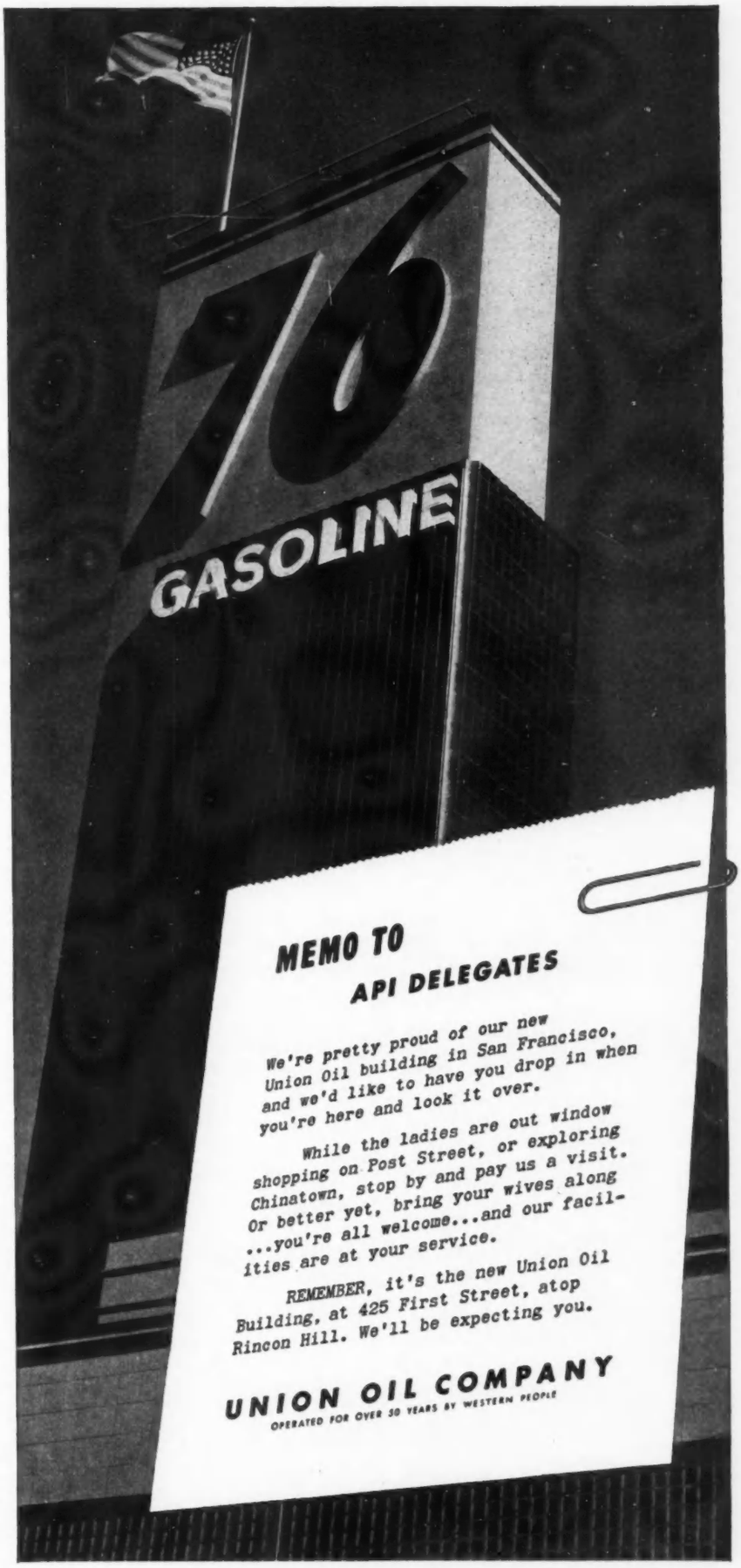
The California Strike

California had been the original home of the union which sought membership among the ranks of oil-field and refinery workers, and that union had had no chance to show its strength before the matters in dispute were compromised during the war. But in 1921 the union took a strike vote, ordered the strike, called it off, and ordered it back on again. Wages and hours were not under dispute, but covered with phrases which indicated that the workers wanted the government to guarantee the agreement between company and employe, was the one thing the union wanted—recognition. The strike lasted several weeks, cut production in the northern fields, where it was worst, about 80,000 barrels a day, resulted in some violence, and then after the companies had put each county on written notice with reference to damages of properties at the hand of the workers, it fizzled out.

It was a great year for the tank builders. The construction companies, who were beginning to meet lean times because the rush of small refinery building in Texas was easing off, found that the reduction in crude prices provided a rich opportunity for them. Both the buyers and sellers of oil—and even some royalty holders, built steel storage. How well they were paid for it was revealed later in the year when the price doubled.

The record of 1921 is a record of frequent meetings of oil men, of the formation of new associations, and W. H. Gray of Houston and Tulsa, whose tears were ever ready to flow on the plight of the little stripper wells, was a favorite speaker, because Bill had given the purchasers fits down in Texas long before.

But while the purchasers were


76
GASOLINE
MEMO TO
API DELEGATES
We're pretty proud of our new Union Oil building in San Francisco, and we'd like to have you drop in when you're here and look it over.
While the ladies are out window shopping on Post Street, or exploring Chinatown, stop by and pay us a visit. Or better yet, bring your wives along ...you're all welcome...and our facilities are at your service.
REMEMBER, it's the new Union Oil Building, at 425 First Street, atop Rincon Hill. We'll be expecting you.
UNION OIL COMPANY
OPERATED FOR OVER 50 YEARS BY WESTERN PEOPLE

talking about too much oil, and were only willing to store it at rock-bottom prices, strangely enough there was talk of a possible shortage. Bob Welch, general secretary of the American Petroleum Institute, in a speech before a marketers' association, stressed the need of new sources of oil. The American Association of Petroleum Geologists joined hands with the United States Geological Survey to make a real survey—a highly valuable one—of the nation's crude oil reserves, and Ralph Arnold of California called a meeting of the petroleum and gas committee of the A.I.M.E. to consider also this important subject.

Meantime the wildcatters were very busy, as will be told in another page and the surveyors of reserves had to revise their figures upward materially before their reports were in.

Too Much Mexico

Mexico was in the limelight. First there was too much Mexican oil coming in. Imports, according to the U. S. Bureau of Mines, including topped crude, amounted to nearly 23,000,000 barrels during the first four months of the year. These imports increased materially, until in the summer Obregon, new chief of the Mexican government, imposed some export taxes which made those of Carranza look small. The tax, according to American companies operating in Mexico, amounted to between 30 and 37 cents per barrel. Shipments from Mexico saw a drastic falling off when the new tax went into effect. In June Mexican exports totaled 17,591,971 barrels. In July they fell off to 6,241,256 and in August amounted to only 5,582,000 barrels. Non-employment in Mexico filled the streets of Tampico with men out of work—one estimate being that there were 10,000 unemployed former workers in the town and fields, of whom 2000 were Americans. About this time some of the most prolific of the Mexican fields began making water. Both the government and the operators were losing a lot of money until the heads of the companies met with Obregon and a settlement was made which reinstated shipments.

No agreement could change the salt water situation, much to the joy of the independent producer in the United States who had been busy at Washington urging Congress to pass an import tax bill which might have passed had not President Harding urged Congress to kill it because of possible international repercussions.

Depression Recedes

The depression began receding in late June, in fact other lines were talking of better business when the last price cuts came. Soon it was found that there was not the empty storage in North Texas which everybody thought there was. North Texas producers were offered premiums for oil by independent refiners. Gasoline stocks, which had been at an all-time high of 755,000,000 gallons, began to go down, except in California which had failed to react to the situation east of the Rockies.

Federal Reserve Aid

When the oil depression was at its bottom, efforts, originally recommended to the Gulf Coast Oil Producers Association by THE OIL WEEKLY, began bearing fruit with the Federal Reserve Board which took steps to make credit available to owners of producing properties.

Gravity buying of crude came in for a great deal of discussion during the year. North Louisiana and California had had prices based upon gravity, but the other areas had not. In the other areas there were two sets of prices, one for fields to which pipe lines had not been built, or were building, the other for fields which already had pipe lines.

Striking at England

The oil industry was receiving a great deal of attention in Washington, where bills had been presented which were aimed at Great Britain or rather British investors in the United States, unless England changed her attitude toward American oil companies abroad. One bill, by McKellar of Tennessee, in effect said that if England did not give American operators the same opportunities in the British Empire that we had given the English in the United States, we would do dire things, and it was broadly hinted that Shell and other English-owned or partially English-owned companies in the United States would become the target of attack. THE OIL WEEKLY in an editorial urged that no such action be taken, pointing out what a dangerous precedent it would establish, and said that diplomacy could settle the question—as indeed it later did. Lord Greenway, chairman of Anglo-Persian Oil Company, in a statement, said that there should be no question of closing the door on American operators, and in effect declared that the San Remo agreement between Lloyd George of England and A. Millerand of France (though he did not mention it by name) was poorly founded. Said he "To bring forward mandatory principles in support of monopoly and of confiscation of required rights would be a travesty."

Later much of the trouble was settled and as a result of that settlement American oil companies were allowed to participate in Iraq

PETROLEUM PRODUCERS COMPANY

Producers of Crude Oil

CITY NATIONAL BANK BUILDING
WICHITA FALLS, TEXAS

oil development through ownership of what is now proving a very expensive fraction (less than one fourth) of Iraq Petroleum Company.

Nineteen hundred and twenty-one was a year of encouragement toward American exploration abroad, as 1922 also was to be. The neglect which American enterprise had had abroad under the preceding administration was to be cured. "Oil Man" Joe Guffy, whose oil company had a large concession in Colombia, was urging that Congress pass a bill which had lain dormant for a long time, making a new treaty with Colombia, and paying her $25,000,000 in connection with the Panama Canal. The bill passed the Senate later in the year.

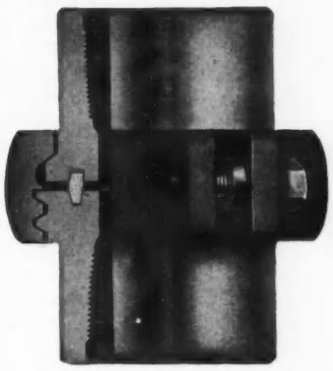
Daniels Favors Nationalization

Because of his action, or lack of it as ambassador to Mexico during the expropriation of American and English oil properties there two years ago, it is interesting to find in the record of 1921 that Josephus Daniels, now American Ambassador to Mexico, and then just about to retire as President Wilson's Secretary of Navy, openly declared for nationalization of petroleum, coal and water power in the United States in a speech before the American Society of Naval Engineers. In the speech, which might be considered in the nature of a farewell fling before leaving office, he made the statement that "The time has come when oil and coal and water power should be nationalized." At that time his Assistant Secretary of Navy was Franklin D. Roosevelt.

California Hits Jackpot

The year was to see the beginning of a development which would play a big part in future oil history. In California, Signal Hill and Santa Fe Springs had their genesis in 1921. Arkansas broke into the producing column for the first time, with a field at El Dorado. Tonkawa and lesser fields in Oklahoma stimulated interest there, while Mexia really put the Woodbine sand area in Texas into the limelight.

Shell's first well at Signal Hill encountered small showings late in May, and came in shortly after as a 300-barrel producer which sanded up. In July it looked like a 1000-barrel well, but no one knew how thick and rich the sand would prove to be. In September the second well of the Shell, located "just over the crest of the hill on the



High Pressure Steel Union
6,000 lbs. Test

Survival
OF THE
Fittest

During the seven years that the RED-REX "Quick Joint" Pipe Union has been making life easier for oil men, numerous other unions have come on the market, flashed momentarily, and then disappeared. Today, RED-REX Unions installed seven years ago are still giving trouble-free performance. When you use RED-REX you're sure to get:

STRENGTH ... SPEED ... SAFETY

Strength That Whips the Toughest Conditions

Whether they face the extreme pressures and temperatures of mud and super-heated steam lines, or the normal operating conditions of tank battery hook-ups, RED-REX Unions have the strength to do the job. They're built tough enough to meet and whip the worst conditions.

Speed That Means Money Saved

RED-REX Unions are fast. They save time and money with their quick, simple action. A few turns one way or the other makes or breaks the joint, and corrosion won't stick them.

Safety That Eliminates Accidents and Repairs

RED-REX Unions are built in a complete range of sizes and pressures. Every Union can withstand operating conditions far in excess of those for which it is tested and rated. You need never fear costly accidents and expensive down time with RED-REX Unions.

AND BEST OF ALL—RED-REX Unions are economical. Their low initial cost; the time they save; and the renewable bronze seal ring which is interchangeable throughout the entire line, mean real economy and greater profits. Start specifying these money-saving "Quick Joint" Unions on all your jobs.

OIL CITY BRASS WORKS
FOUNDERS · MANUFACTURERS · MACHINISTS
BEAUMONT, TEXAS, U. S. A.
EXPORT OFFICE: 19 Rector St., New York City
HOUSTON OFFICE: 634 No. Edgewood St., Phone W-6-1739

RAY L. SMITH CONSTRUCTION CO.
PIPE LINE CONTRACTOR

Modern Equipment — Operated by Experienced Pipe Liners

Hazlett Building Eldorado, Kansas

northwest side" came in as a gasser with a roar which startled the citizens of Long Beach. It caught fire and for days was a beacon which could be seen 50 miles out to sea, a roaring, earth-shaker which gave a fitting start to the development on the famous hill.

In October, Union Oil Company brought in its second well at Santa Fe Springs. The first one had been in, producing around 100 barrels a day for nearly two years, with subsequent drilling most disappointing. Then the second well, Bell 1, came in and steadily increased in production until two weeks later it was making 2500 barrels of 36-gravity oil. It had cost $200,000 to drill, but the campaign it started made $200,000 look like small change.

Arkansas Starts Producing

It was the Bussey well on the Armstrong, a mile and a half north of El Dorado which set that little city afire with an old fashioned oil boom—the first, but by no means the last, in Arkansas. It did about all a discovery well was supposed to do in those days, including breaking its connections and running wild. Operators started flocking to El Dorado. When somebody on the streets of El Dorado a week or two after the well came in, voiced the suspicion that the discovery well was not a 10,000-barrel well an officer of the law, star and all, took charge, and mounting a box announced to the crowd on the street that El Dorado was tired of knockers and that as far as he was concerned "she was a 10,000-barrel well and I don't want to hear anything different!" Before the year was out the field was producing over 70,000 barrels and drawing top prices for the oil. The personal page of THE OIL WEEKLY reveals that it was in these first few months of El Dorado's oil history that Colonel T. H. Barton, now president of Lion Oil & Refining Company, and prominent nationally in oil affairs, went to El Dorado for a visit—and stayed.

Not far from El Dorado, Haynesville, a little Louisiana village, was the stage for a field which some thought would be a connection between El Dorado and Homer.

Slow Start at Mexia

The development of Mexia was different from that of any other field the writer has ever seen. The first well came in in December, 1920. It was right under the nose of all the large companies who had offices at Dallas and Fort Worth, not much more than 100 miles away. Its completion was fully reported in all the oil papers and the newspapers. Yet for some reason the majors were all afraid of it, and most of the smaller companies took their cue from the big companies—and all of them were to pay for their lethargy later. As late as March the first well, producing about 75 barrels per day at that time, had no sister production, the second well of Humphreys Oil Company coming in late in that month, a better well than the first. Yet strangely enough on April first there were only three other operators in the field, other than Humphreys. But in May Humphreys completed a 4000-barrel well, and in August Western Oilfields Corporation finished a 10,000-barrel well.

Play Picks Up

Then the rush was on. The majors and independents alike went after acreage, and they paid some fancy prices. Magnolia Petroleum Company had started in business at Corsicana, only a few miles away, and it looked as if Magnolia was going to have to hump to get in. The first week in September Magnolia bought the Western Oilfields Corporation well with its surrounding 48 acres, for $1,100,000. Other majors were buying as fast as they could get leases and development started in a big way.

Before the year was out the production had reached 100,000 barrels a day and The Pure Oil Company had bought into Humphreys Oil Company. Before the year closed Colonel A. E. Humphreys had made a deal with Standard Oil Company (Indiana) under the terms of which thirty-three million barrels of Humphreys crude at Mexia were to be sold for $1.50 a barrel. It was a long time after this before the deal, involving what was later referred to as the "Continental Deal" was known in detail—and cost the president of Standard Oil Company (Indiana) his job.

But not content with bringing in the Mexia field, Colonel Humphreys moved up the line and in October brought in a gasser at what was to become the Wortham field. Texas Woodbine sand was in for a real development.

Sixty-six "oil prospectors" were given permits by the Department of the Interior to "lay out claims" in Alaska. Tales of an oil seepage on Coal Bay which made a lake were reported, and before the close of the year the department issued a bulletin telling of a small refinery in Alaska operating on seepage oil. Twenty years of prospecting since that time, however, leave Alaska at this date without a commercial oil well.

The Aztec Syndicate in San Juan County, New Mexico, drilled in a five-million-foot gas well, which later broke its connections and ran wild for a time. A showing was reported in Quay County—the crop

NAVARRO OIL COMPANY

SAN JACINTO NATIONAL BANK BLDG.

HOUSTON, TEXAS

from the 40 wildcats reported drilling during the previous year.

In Oklahoma

Oklahoma had some interesting new finds. It was in 1921 that the Deer Creek field came in, first production in Grant County. As has been noted the Tonkawa field was added this year. Big news in Oklahoma came fairly regularly from the Osage where, in two auctions, operators paid more than $10,000,000 for leases. Pottawatomie County also saw its first producer in 1921.

Texas also saw several fields opened in addition to the development at Mexia. The field at Orange, destined to produce some big wells, was added this year, as was Pierce Junction, within four miles of Houston's city limits, after nearly 20 years of continuous prospecting. Ibex Oil Company opened a field in Shackelford County, and the year closed with prospects bright for a heavy exploration campaign in the Texas Panhandle.

The Year Abroad

Abroad, 1921 was the year that the Japanese are supposed to have found production on Saghalien Island, scene not long before of one of the bloodiest massacres in history when Russian convicts on the island revolted and killed more than half of the inhabitants of the capital of the island.

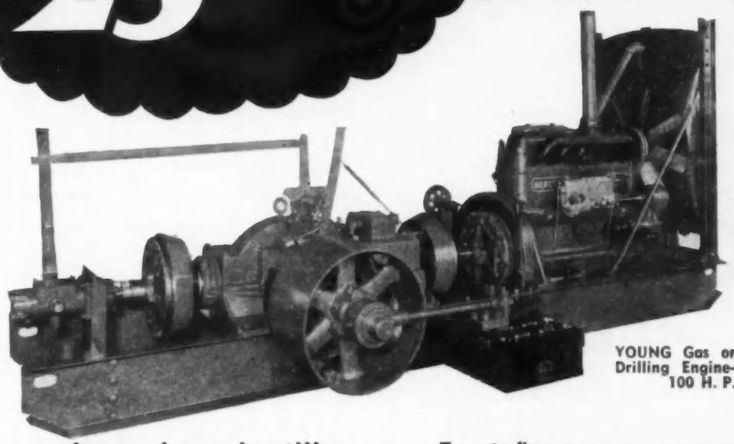
Trinidad reported the 100,000-barrel well of Apex Trinidad, but a study of reports later on indicates that what was meant by the "100,000-barrel" well reported, was that it made 100,000 barrels before it stopped producing a few days later.

Argentina got the biggest flow in her history at Comodoro Rivadavia, where the government completed a 25,000-barrel well. This well, plus others drilled near it produced so much oil that the three government tankers were insufficient to handle the oil. Fuel oil took a big drop in Argentina, but the good news in Argentina did not end there. It was in 1921 that the government operation at Plaza Hincuil, Province of Neuquen, came into production.

Mexico saw the discovery of Toteco at an opportune time when Amatlan was going to salt water. Mexico that year had a big wildcat drilling campaign under way. Toteco was an International Petroleum Company (John Hays Hammond) discovery. Huesteca got a big well on Tierra Blanca hacienda.

Late in the year the U. S. Geo-

25 YEARS YOUNG



YOUNG Gas or Diesel Drilling Engine—85 to 100 H. P.

—and our slogan is still a profitable one to remember

YOUNG ENGINES

"MAKE YOUR DRILLING DOLLARS GO DEEPER"

Twenty-five years ago many a skeptic was saying, "You can't do THIS job with that kind of power on my rig." But they were willing to be shown. One by one they tried Young Multiple Cylinder Internal Combustion Drilling Engines on tough jobs and became enthusiastic converts to the revolution then taking place in the field of power drives for drilling rigs.

The speed, economy and reliable performance of Young Drilling Engines is no longer news. But even today those pioneer units, so quaintly out-of-date when compared to the Young Drilling Engines you buy today, are recognized for the soundness of their engineering. On that field-proven foundation of basically correct design rests the continuing development that keeps this fact ever true . . .

YOUNG ENGINES MAKE YOUR DRILLING DOLLARS GO DEEPER.

Send for Bulletins:
Gas and Diesel Drilling Engines (Bulletin No. 20-W)
Electric Light Plants (Bulletin No. 40-W)
Natural Gas Mixing Valves (Carburetors)
Butane Mixing Valves (Bulletin No. 19-W)
Power Units — Pumping Engines
Under Road Boring Machines (Bulletin No. 15-W)

YOUNG ENGINE CORP.
CANTON, OHIO

A. E. Avers, P. O. Box 606, Tulsa, Oklahoma
Iverson Tool Co., Odessa, Texas
Artesia, New Mexico
Branchland Pipe & Supply Company
Huntington, W. Virginia

W. G. (BILL) HANRAHAN
PIPE LINE CONTRACTOR

Building — Reconditioning and Reclaiming
Oil, Gas and Gasoline Lines

5500 HOLMES STREET PHONE H-6938
DALLAS, TEXAS

logical Survey opined in a bulletin that drilling in the central plains area in Haiti might prove productive.

Rumania was staging a comeback, reworking fields destroyed during World War No. 1, and Rumanian production was beginning to climb.

Tropical Oil Company had started its refinery at Barranca Bermeja, and had laid a 4-inch line to the Infantas field. The present splendid layout at El Centro was still not even in the planning stage.

Venezuela was getting a great deal of geological work and Shell was putting into use between Maracaibo and Curacoa the British monitors it had bought to use as shallow draft tankers.

By 1921 the oil industry was getting so modern minded that an engineer could walk on to a derrick floor even in Texas and escape without serious molestation. Most of them came from California and the universities in the oil states of Texas and Oklahoma were asking themselves why California should have this monopoly. Texas A. & M. instituted an oil course, although it was far from being rounded out into its present efficient petroleum engineering course. Oklahoma had under way a petroleum-engineering department which grew out of that institution's very fine geological department. University of Texas had an excellent geological department but a petroleum engineering course was not listed.

Every kind of a new wrinkle that was suggested or carried out brought the suspicion that an engineer must have been around. But some well executed things were done in which the engineer had no hand. Gilly Gillespie, drilling foreman of Transcontinental in Mexico thought out for himself the idea that the up-draft of air around a fiercely burning well at Zacamixtle would be cooler than the surrounding air, and working under the general direction of Homer Craig, drilling superintendent of Aguila, walked up to the well, clothed in an asbestos cape, on which streams of water constantly played, and killed two burning wells merely by closing the gate valve. Gilly was a real hero who put his science to the death test.

An historical study is not without its humorous moments. One such came when we read the recommendation of R. E. Collum, then State Oil & Gas Supervisor, now vice president of Continental Oil Company, that wider spacing would be desirable in California. What makes it humorous was that he issued his statement only a few weeks before Signal Hill and Santa Fe Springs came in—and Burkburnett in all its glory did not equal the close drilling of those two fields. Of course that was not Collum's fault.

A nice bit of salvage work was performed on the National Transportation Company's tanker, Penrose, which was stuck on a bar near Tuxpan. Sixty sticks of dynamite, well placed, blew her off the bar and she went back to her home port for a few minor explosion repairs to her hull.

The American Association of Petroleum Geologists recognized foreign development with a day devoted to discussions of foreign areas. Ralph Arnold discussed Eastern Alberta; A. A. Hammer talked about Venezuela; F. F. Marsters chose Peru, and D. R. Semmes dealt with Mexico, but the highlight of the meeting, held in Tulsa, was the joining of hands with the U. S. Geological Survey

GULFCO
DEPENDABILITY

Makes for pleasant and time-saving dealings

•

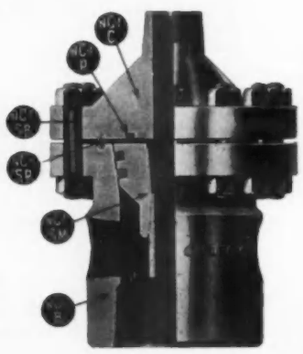
Gulfco Forged Steel Tubing Heads

Type NC 1

2000 lbs., 4000 lbs., 6000 lbs. Pressures. Hanger can be run through blowout preventer. Full opening head. Permits drilling-in, and running and landing tubing through flanged blowout preventer equipment.

Gulfco Forged Steel for Safety

Write for our special catalog with prices



GULF COAST MACHINE & SUPPLY COMPANY
22 Years Manufacturing Forged Steel Fittings
BEAUMONT, TEXAS

Newman Brothers
DRILLING COMPANY

•

MILAM BUILDING — SAN ANTONIO

Wm. C. Newman, Jr. — John E. Newman

in a study of U. S. reserves. The committee appointed by President George C. Matson of Tulsa embraced the best talent in the profession.

Nineteen hundred and twenty-one was the year when the first book devoted to engineering methods in drilling and production was published. John R. Suman was the author and, as the writer was one of the partners in the venture of publishing it, no harm can come from saying that the author being uncertain of its reception from a financial standpoint, six friends, of whom the writer was one, joined resources to guarantee the printer his money. Incidentally this book, long since out of print, had ultimately a sale of several thousand copies and a modest return was had by all the backers.

1921 Sidelights

It was in 1921 that the firm of Fortine, Pearce and Herb, pioneer drilling contractors, and beloved by everyone, sold out their business in Mexico and retired. THE OIL WEEKLY's correspondent in Tampico, in reporting their retirement, commented on their success, but his highest compliments were reserved for the partners as men.

Twenty years ago this past summer a young sergeant major reported to a captain in the Texas National Guard brigade headquarters at summer maneuvers. Following his report the captain looked at him closely and said:

"Haven't I seen you before?"

"I don't know, sir, I've been knocking around this country for a number of years," was the reply.

"What outfit are you out of?" demanded the captain.

"First Texas Cavalry, sir."

"Well maybe you have seen me out in the oil fields, sergeant. I am an oil gauger for the Gulf and probably you have been in one of my gangs some time."

"I wouldn't be surprised if that was where the captain saw me. I am a vice president of the Gulf," was the startling reply as Sergeant Walter B. Pyron, now Brigadier General Pyron of the U. S. Army, saluted and executed a smart about face.

1922 . . . More Hectic

TAKE a score of important new fields, hectic drilling campaigns throughout the United States from Kentucky to the Pacific Ocean and as far south as Venezuela, mix them thoroughly with over-production, premiums, price cuts, salt water and throw in a few scandals, martial law and Texas rangers and you have 1922!

The year opened with operators feeling that they had experienced every hardship possible the year before. Wide price fluctuations had taught them that nothing was sure but taxes, and they had begun to feel that they were thoroughly hardened to the effects of too much oil and a system of price making which still leaves the observer slightly dazed. That is what they thought, but they learned better!

Nineteen hundred and twenty-two started with a price of $2 per barrel for Mid-Continent and other light crudes except North Texas which drew $2.25, and though the threat of over-production hung over the industry, it was not until summer, when consumption was at a new high, gasoline stocks were diminishing, and Mexico was threatened with water trouble, that the price broke. In three weeks it went down to $1.25 for the light oils except North Texas.

In fairness to the purchasers, it should be said, however, that production was growing more than demand, and the Bureau of Mines figures on gasoline stocks were released so late as to be something in the nature of ancient history. Also they were under fire during the year and some evidence was offered that they were not what the figures of a big, up and coming government department should be.

A strange anomaly of the price situation was that before and during the price-cut period, many independent refiners were paying bonuses for light oil, in North Texas, Oklahoma and Pennsylvania, the premiums running from 25 to 50 cents above the posted price.

Operators in Training

The independent operators had had some experience the year previous in learning how to act under a price cut and they dashed into the harness like old fire horses, that is, all but the Gulf Coast operators whose fire-fighting apparatus, water in Mexico, was on the job with the result that Gulf Coast crude was not cut. Meetings were held, committees appointed, resolutions were drawn up, and some of the operators who remembered how much they might have made the year before by purchasing steel storage, responded to the "buy a tank" program and put in their own storage, awaiting the upturn. It came, incidentally, about on schedule beginning in November.

In the meantime committees were meeting in Washington, asking for a tariff, and offering to compromise with just a sort of token tariff, which they did not get that year. But a committee did get Secretary Albert Fall, Department of Interior, to tell the operators at Burbank in the Osage to shut down on top of the sand, and then a cry went up. It developed that some fancy prices had been paid the Indian wards of the government for Osage stuff offsetting production, and those who had paid the prices and were drilling, particularly at Burbank, would not be allowed to protect their acreage against drainage from wells already in. The Central Committee on Evaporation and Storage (that is what they called the curtailment committee in Oklahoma) stood pat and asked the secretary to stand just as pat, and he stood. But a couple of weeks later the committee decided that it was not fair, so the secretary was asked to rescind the order, and he did and everybody was happy, and Burbank went to 90,000 barrels a day, just like that.

But by this time the operators and the purchasers were getting pretty well hardened to what was happening and what might happen, so the price of oil was put back up. This may seem a rather facetious way to put it, but I would dearly love to have some of the gentlemen who named the prices back in those days (some of them still have a hand in it) read the back files of oil papers as I have, and then make sense of a great deal of what happened. Because, strange as it may seem, the price was raised in the face of steadily increasing production. It was in July that the daily crude-oil production set a new record of more than a million and a half barrels, the same month the price was cut. It was in November, when the price was raised, that it went over 1,600,000, and the price boost in December fell in the same month that saw daily production go over 1,750,000 barrels!

A very important change in buy-

ing methods resulted from the price fluctuations and new production of 1922. Gravity buying was resorted to when the price started up and "gravity consciousness" on the part of the producer resulted in wholesale purchases of gas-tight field tanks. No one will ever know the actual conservation effect of the imposition of the gravity basis in the buying of crude oil.

Before going into details on new fields and the happenings out where mud and the wildcatter reigned, the tale of 1922 is not complete, in fact cannot in fairness be told, without a mention of Teapot Dome. The name is a nice one but there are those in these United States who probably wish they had never heard of it.

Teapot Dome

Teapot Dome is a structure on government land in Wyoming, lying adjacent to the Salt Creek field. Geologists thought so highly of it that large estimates were made as to its ultimate production before it was drilled. Conservatively, it looked like a property any oil company would crave to own.

Secretary of Interior Albert B. Fall leased it to Harry F. Sinclair. At this point there seems to be some little cloud on just what did happen. The impression given in the oil press at the time was that Sinclair personally, was the person who had leased Teapot Dome, and not Sinclair Consolidated Oil Corporation. A little later Mammoth Oil Company was organized to handle Teapot Dome and when the public was invited to partake of a limited number of shares, it appeared that the Sinclair organization was in some way back of Mammoth. At any event the published records we read never did mention a bonus for the lease, but did mention a royalty of 12½ percent, with graduated features which meant a premium to the government if the production went over a certain amount per day. Also there was a pledge that a pipe line would be built to take the oil to market—and that the line would be a common carrier, theoretically thus giving Wyoming another line out.

The operators in Wyoming, however, poked a finger of considerable scorn at the deal. In mass meeting assembled they protested to high heaven that no lease of government land should be made without competitive bidding, and they gave the 1922 version of "Oh, Yeah" at the suggestion that the new pipe line would be of help to them. Some were scornful enough to say in the public prints that the line was not to be built until the field was known to have a certain capacity, and that that capacity would be the capacity of the line, another way of saying that the line would not help the independents. (As a matter of fact it did help them). They also pointed out that the land was in a Naval Reserve, supposed to be held to help the Navy, and that the Navy was not having trouble getting oil at that time.

The independents in Wyoming would have made it bad enough, but the independents in Oklahoma, who remembered that Sinclair had led in the price cuts the year before, did not feel so cordial. So they, without having any stake in the affair, met and offered some resolutions which showed a close parallel with those of the operators in Wyoming.

About this time Harry F. Sinclair, in a statement, said that the contract for the development of Teapot Dome was the most important event in the history of Sinclair Consolidated Oil Corporation.

In May the United State Senate authorized an investigation of the deal. The same month F. B. Tough, supervisor of oil and gas operations of the Bureau of Mines, came out in a statement and defended the lease as a fair contract and one beneficial to the government. The royalty provisions, he declared, were excellent.

Less than a month later, Secretary Fall, under fire, also issued a statement defending the lease as a fair deal to the public interest. In September Senator Kendrick of Wyoming attacked the deal and claimed that the royalty provisions were lower than usual.

In October Mammoth Oil Company was in full stride of development. That month it brought in its first producer, which hit a stray sand and was reported to be good for about 9500 barrels of 41-gravity oil at 1515 feet. The second producer came within a week and was reported good as a pumper, also from a stray sand. In November a well was drilled into a regular Salt Creek sand and was reported good for 2500 barrels. Teapot Dome looked better then than it ever did afterward.

As time passed on, the Teapot boiled more fiercely. Elk Hills reserves in California, leased to E. L. Doheny, became involved. What finally happened, how a cabinet was shaken, how the oil industry was affected by the backwash is a story which was not completed until more than two years later—in fact a part of the story is still unwinding, and we shall leave its conclusion in this history to the year when United States courts rendered their decision.

California's Effect

Up until 1922 California had just been a state where oil men from the East either went to retire or to

MARATHON PRODUCTS

Manufactured

By

The Ohio Oil Company

General Office:
FINDLAY, OHIO

District Office:
HOUSTON, TEXAS

enjoy life. It was a great oil state, but other than to offer some excellent improvements in methods, and tools, and to give impetus to the petroleum engineer, California had provided no great economic effect on oil men east of the Rockies. True, a year or two before, California had furnished a market for Mid-Continent gasoline in trainload lots at 22 to 25 cents a gallon, but that was about all. This changed in 1922. The fields at Huntington Beach, Signal Hill and Santa Fe Springs, all new ones, and particularly the latter two, began throwing flush production on the market faster than even California could absorb it. So California started shipping oil and later gasoline to the Atlantic Seaboard, a procedure as disgusting to Mid-Continent oil men as was the later action of East Texas to Californians in shipping cargoes of distressed gasoline around to the West Coast.

The heavy-oil situation was being complicated as Mexican field after field began showing or went to salt water. But that will be touched upon at another point.

California's Big Year

Because the California development did have a national effect, let us turn our attention to the mound-like hill north of Long Beach, and the orange groves of Santa Fe Springs.

To the reader of records in those days of 1922, one thing sticks out in California oil news to an even greater degree than the multitude of derricks on Signal Hill. Operators could move in their materials and drill wells without mules, roughnecks or equipment disappearing into the mud. A picture published in THE OIL WEEKLY played up the orange trees as secondary to the marvel of a paved road into an oil field.

Forgetting recommendations of State Oil & Gas Supervisor Collum, Californians drilled wells steadily more closely on Signal Hill. Land which the city of Long Beach had planned to use as a park was leased. A cemetery was surrounded. What had given promise of a pretty mountainside subdivision overlooking the Pacific became a tangled mass of redwood derricks. If the sand had not proven to be rich and thick, Signal Hill would have been the graveyard of a lot of promotion companies, but today, nearly 20 years later, one finds those wells finished in 1922, pumping away. Before the year 1922

8 YEARS BITING NAILS FOR PUMP OWNERS

The Abercrombie SHEAR-RELIEF Valve started shearing nails more than 8 years ago when field tests proved it to be the one sure means of protecting pump parts and rotary hose against the hazards of excess pump pressure. The valve was such a cinch for keeping pump maintenance costs to rock bottom that good news of it, and resulting sales, spread to oil fields all over the world. Meantime, there are thousands of them in use, and every time pressure approaches the danger point another nail is gone. So, while we've been a menace to the pump repair man's business — we've been a real boon to the nail manufacturers.

FLUID-PISTON FLUSH PUMPS
ABERCROMBIE PUMP CO.
GULF BLDG. HOUSTON, TEX.

SHEAR-RELIEF VALVE

WESTERN PETROLEUM EXPLORATION CO.
AND
AINSWORTH BROS., INC.
WM. L. AINSWORTH ALFRED AINSWORTH DAVID AINSWORTH
★
Water Flooding Investigations
★
Pioneers in Core Drilling in Active States
PHONE 3-3785
UNION NATIONAL BANK BUILDING, WICHITA, KANSAS

was out the Bixby Hill extension was brought in, and a rich deeper sand found.

Over at Santa Fe Springs, a few miles away, one of the prettiest orange growing areas in California was getting row upon row of derricks. Both Signal Hill and Santa Fe Springs had their quota of blowouts and fires, and at one time Union Oil Company had three wild ones at Santa Fe Springs. But an improved casing program and more experience soon made Santa Fe Springs into a model field, its behavior being interrupted from time to time by bad gas pockets Toward the end of the year the three Southern California fields were producing more than 260,000 barrels a day, some new wrinkles in promotion had been uncovered and an oil tool industry had started growing to the point where the Southern Pacific railroad made special rates east for California oil country equipment.

And as though the three fields already named were not enough, C.C.M.O. put its well in the new Torrance area on production and not even the big operations elsewhere interfered with its development.

Mexia Looms

Mexia, up in Central Texas, loomed large on the horizon and the Mexia area kept looming throughout the year, the final loom being the biggest to date. Some of the boys who had been camp followers of a mild bad-boy sort moved in from North Texas, proceeded to operate a wide open town of the type of '49 and it took the Texas Rangers and the National Guard to stop them. Disregard for law came to be accepted along with the surety that Colonel Humphreys would bring in a new field a month.

We recall that on one visit to Mexia we were approached by a youngster who formerly had lived next door. He had left the comforts of a home where his father was a district judge and his mother a pillar in the church, to become a driller. When we saw him in Mexia he was about to blossom forth as a drilling contractor. All he needed was a little money. He approached the writer on the basis of a boyhood friendship and suggested a partnership.

"I have the experience, and if you will put up $5000 we can get rich in a hurry," he pleaded. "I can borrow a rig, I know where I can get a boiler, and all I need is $5000 for the pay roll," he argued.

"But how about drill-stem?" we asked him, noting that he had omitted a very important item.

"Oh, that," he replied, "I know where I can steal that tonight!"

His attitude was not as unusual as one might think!

Colonel E. A. Humphreys had really started something at Mexia, and he followed it up in magnificent fashion before the year was out. Curry, in July, Seay & Cranfill's Richland pool a little later, Kosse, a joint Humphreys-The Texas Company, venture where a well was a 9500-barrel producer one day and a complete fizzle the next, and then oil at Wortham. Small wonder that the dean of the oil writers of the time, Andrew Jackson Hazlett, writing from Casper, suggested that in the interest of the oil industry as a whole, Colonel Humphreys and "his trained geologist, F. Julius Fohs," take a trip around the world and spend at least a month in each country!

Elsewhere In Texas

But all of the excitement in Texas was not confined to Mexia and the Woodbine-sand area. The Miranda pool down on the Texas border came in, and started a new empire of development. The Texas Panhandle saw its first oil well when the Gulf Production Company's S. B. Burnett 1 was completed for 200 barrels in Carson County. H. T. McGee's Smith Capers 1 in Hutcheson County was a small wildcat producer, both wells forerunners of much development later.

In Mitchell County a freak well came in making five million feet of non-inflammable gas. It broke loose and ran wild, making fifty million feet of such gas, and 10,000 barrels of salt water a day — and then, drilling itself into another sand, caught fire! Which was just about the gamut for a gas well.

The Orange field in Texas grew to sizeable proportions and boasted during the year the world's deepest producer, Gulf Production Company's Kishi-Lang B-4, at 5490 feet! High Island made its first bid as a real producer in 1922, which reminds us of our suspicion that if we make this history contain a list of the new fields each year from here on, we shall need a supplement. But we must record Luling because a real tale of the oil country hangs on that.

The Story of Luling

No oil field is opened without its dramatic moments but the story of Luling, Texas, had highlights all its own. Luling is the story of faith. Faith was so much the bed rock of the opening of the Luling field that Edgar B. Davis, president of United North & South Oil Company, discoverers of the field, insisted to the editor of THE OIL WEEKLY that the discovery well be designated by the word "faith" rather than by the name of the land owner.

United North & South Oil Company was a child of the brain and

GILGER DRILLING CO., INC.

BOTH LIGHT AND HEAVY ROTARY DRILLING RIGS

18TH FLOOR MELLIE ESPERSON BLDG.

HOUSTON

pocketbook of Edgar B. Davis, who had been a successful rubber manufacturer. He it was who planted the first rubber plantations of the United States Rubber Company in Sumatra. He entered the oil business a moderately wealthy man. The first wells at Luling were not producers, but they had sufficient showings of oil to encourage the developer until his funds were exhausted and it appeared the work must stop. Office furniture in his New York office was sold, every effort was made to secure funds without asking them of friends, and drilling proceeded. Finally the end of resources came. In the meantime the brother of Edgar B. Davis had died in New York and his secretary, visiting a summer cottage at Cape Cod, discovered a suitcase containing a considerable amount of stocks and bonds bought for Edgar B. Davis by his brother while Davis was abroad — stocks and bonds about which he had forgotten.

These were sold and drilling proceeded. Again the end of the rope came in sight but by this time the efforts at Luling had attracted the attention of Magnolia Petroleum Company and Davis was able to borrow $25,000 from Magnolia, the rig and leases being put up as collateral. The loan fell due and was extended.

In August it was due again. The loyal office and field force had been serving by this time for months without pay.

Finally on an August morning, Davis dictated a letter to a stenographer who had not received her salary for months. The letter was addressed to Magnolia Petroleum Company, at Dallas, and in effect it said that although Davis had fought the best fight he knew how to make, he had not been successful, and the loan could not be paid.

Magnolia, he said, should protect its interests and take up the collateral. It was a sad moment for president and employe. The end had come. The fight was over. Years of faith, backed up by the resources of a once wealthy man, had come to naught.

Leaving the stenographer to transcribe the letter Davis went out to take a look at the well which represented the blasted hopes of an idealistic sentimentalist. As he drew in sight of the well, he paused, startled. Oil was going over the top of the derrick!

What Davis did with his money, how he founded an institution

In The Service of Defense

The vital role played by petroleum and its products in modern industry and transportation makes its uninterrupted production essential to our program of National preparedness.

As always the Banks of Fort Worth are cooperating with the Oil Industry in this period of graver responsibilities and new demands. Oil men who bank in Fort Worth find financial facilities unexcelled for their needs and service that is friendly, efficient and prompt.

You are cordially urged to discuss your requirements with the experienced officers of these banks.

THE FIRST NATIONAL BANK
THE FORT WORTH NATIONAL BANK
CONTINENTAL NATIONAL BANK
FORT WORTH

which has proved of immeasurable value to the farmers in the Luling community — and indeed of Texas, how he financed a play in New York which portrayed a principle in which he was interested, how the employes were taken care of, how the ownership of the Cape Cod summer home became the basis of a suit by the state of Massachusetts to take from him the proceeds of his success in Texas, all are stories which came after he had sold the properties to Magnolia for $12,000,000.

Smackover Comes In

Arkansas the year before had broken into the production column but it was in 1922 that Smackover was brought in, a field which gave rise to a faster increase in production, and wilder oil company promotions than any field we have ever seen.

To begin with, at the beginning of the year the Bureau of Mines issued a bulletin in which it was indicated that better things were in store for Arkansas than simply El Dorado, because the writer suggested that the Blossom sand was within reach of the drill. In July, Van Cleave, Kronenberg, Freeman Drilling Company's well at Smackover, in Ouchita County, began flowing by heads. As usual the analysis of the oil showed that it was not worth shipping, or, stated more conservatively, the published analyses indicated that the oil had no appreciable amount of gasoline. The field rocked along with the ordinary excitement which a few-hundred-barrel wildcat produced in those days, and then on Friday, October 13, the Marrs Syndicate's Saxon well, a two-mile extention, came in for a big well. A month later production was in excess of 37,000 barrels and by January it had reached 85,000 barrels, and had already had a price posting and a cut to 30 cents per barrel; Patt Marr had sold his 670 acres in the heart of the field for $2,000,000, and the end was nowhere in sight.

Oklahoma was getting big wells that year in the Osage, Bristow, Tonkawa and Burbank coming in for heavy play, and flush production of premium oil to the point where in September Burbank was regarded as one of the upsetting factors in the crude market in the upper Mid-Continent. Oklahoma operators, incidentally, paid more than $14,000,000 for leases on Indian lands in 1922.

During the year Prairie Oil & Gas Company's wildcat in Hughes County shot acreage up to $1000 an acre, and late in the year THE OIL WEEKLY published a story that "reputable geologists have expressed the belief that the state capitol at Oklahoma City is located on a good oil structure."

The Rocky Mountain area was feeling the excitement of Teapot Dome in the middle of the year but at the beginning 863 tests were reported shutdown on account of a blizzard.

Helmerich & Payne, Inc.

PHILTOWER

★

TULSA, OKLAHOMA

In Illinois, the drilling report showed that five producers were completed in the Centralia field, good for 200 to 250 barrels each, and Michigan was credited with a good producer, while a 1000-barrel well in Kentucky vied with a 300-barrel flowing well in Pennsylvania.

Big Well in Venezuela

Although the news was not printed in the United States until January of the following year, the most significant happening abroad in 1922 was completion of a big well at La Rosa, just east of Lake Maracaibo, by Venezuelan Oil Concessions, a Shell subsidiary, a well reported at 50,000 to 100,000 barrels per day of 24-gravity crude at 1560 feet. Inasmuch as the big wells of those days were gauged by guess and by gosh until shipments started from a field, it is not possible to state accurately as to just what its production actually was — but of one thing there is no doubt: This well, more than any other, really started development in Venezuela.

Production to the amount of 10,000 to 12,000 barrels per day was already being developed by Shell interests at Mene Grande, located inland a considerable distance from Lake Maracaibo, although in the same general district, and in 1922 a pipe line was being built to handle the oil from the Mene Grande field to the lake.

Ground work for development in Venezuela had already been laid. American and other concerns were, and had been, busily engaged in getting concessions from Dictator Gomez of Venezuela. Those concessions in the Maracaibo district soon were to have a real test.

Incidentally, it was in 1922 that England finally withdrew from the obnoxious San Remo agreement, paving the way for entry of American capital into what was to be known as Iraq Petroleum Company.

Sinclair Consolidated Oil Corporation told of starting operations in Angola, Africa, operations which have continued off and on for years with no commercial production to date. Sinclair's concession on the Island of Sakhalin was reported, a concession on which no drilling ever was done by Sinclair.

Standard Oil Company of New Jersey, according to a dispatch from Buenos Aires, entered Argentina in the territory of Neuquen, and was making some studies in Bolivia.

The Marquis of Lothian's estate in Scotland was reported as the scene of an oil strike, and even the analysis of the crude was given, but this particular field did not feature in later news.

The Island of Dago (Dagden) off the Coast of Esthonia also was said to have gotten some oil in a shallow well.

Standard of New Jersey reported early in the year that an agreement was being worked out by which it would be the exclusive American company to operate in Anglo-Persian's exclusive oil domain in Persia, but the report, like that of Lord Lothian's oil field, appears to have been premature.

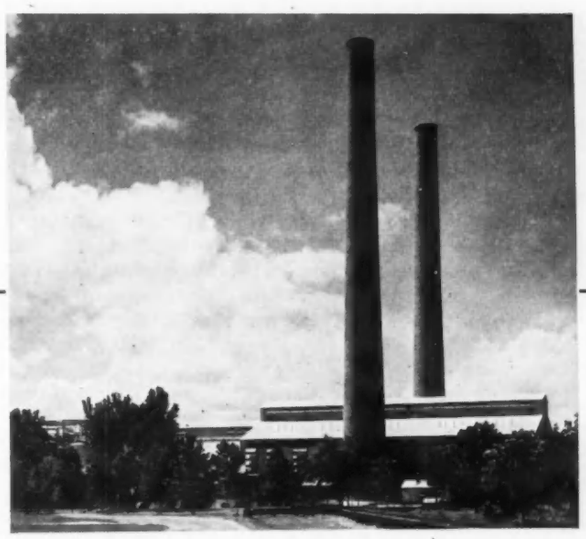
In Russia

Russia, after having killed off the competent operators in a wild Red orgy, was looking for technical help and machinery with which to operate her oil fields. This gave rise to reports that the Royal Dutch Shell and later Standard were flirting with the Bolsheviks. But Sir Henri Deterding, who always was a man to cut to the heart of a matter in conversation, called the report a lie and said that his company was no receiver of stolen property, and shortly thereafter Walter Teagle also declared that the report that Sandard was dealing with the Communists was without foundation.

It was a few months after this that Mason Day, president of Barnsdall Oil Corporation, announced on landing in New York that a subsidiary of Barnsdall, to be known as Barnsdall International, had made a deal with U.S.S.R. under which Barnsdall was to furnish the technical executive board (and presumably the money) and the Russians would furnish the non-skilled labor in a kind of partnership on 400 acres at Baku, Barnsdall International to receive a satisfactory percentage of the production. Later it developed that Captain J. F. Lucey's Lucey Manufacturing Corporation was in on the deal to furnish the equipment. But like a number of concessions abroad announced in 1922, this one too, proved an "also ran," in that, although wells were drilled, it did not pan out.

Mexico and Water

It was Mexico which provided the foreign excitement, Mexico where 100,000-barrel wells had been bandied around like nickel cigars. By 1921 it was noticeable that Mexican wells had a habit of



SULPHUR

FOR DEFENSE!

TEXAS, WITH ITS NATURAL RESOURCES—so vital to the successful defense of the Nation—its many ports, its geographical location and year-round climatic condition stands out as an essential State to the success of the all-out defense program.

STEEL FOR GUNS . . . SHIPS . . . TANKS . . . to fill and maintain the arsenal of democracy. And in the manufacture and processing of steel, SULPHUR—TEXAS SULPHUR—plays a most important role.

PETROLEUM FOR THE WORLD'S DEMOCRACIES! Oil for our ships . . . for vital defense industries . . . gasoline to speed mechanized units. All vital necessities in the all-out defense program. And in the processing of this vital product so essential to the Nation's defense we find sulphur of invaluable importance.

WORKING SHOULDER TO SHOULDER with other industries of the Nation, the Texas SULPHUR industry is doing its part. Our job is to produce pure SULPHUR in sufficient quantities to supply the demands of a rapidly expanding defense program.

Texas Gulf Sulphur Co., Inc.

Producers of CRUDE SULPHUR

JACK W. FRAZIER

OIL OPERATOR

DRILLING CONTRACTOR

1311 MELLIE ESPERSON BLDG.

HOUSTON

going to water if drawn upon heavily. This was a phenomenon well known to the oil fraternity but was something which had to be learned all over again by the investor and the gentlemen who operated on the New York Stock Exchange. However, by the end of 1922 these gentlemen should have passed out of the first grade on this subject—and a great many of them did, some even passing out of school.

By the time 1922 was well underway it was realized that the Toteco field would be called upon to do yeoman service in supplying low-gravity oils to the United States and Europe. Fields in that neighborhood had suffered declines in production as a result of salt water intrusion, these fields all producing from hydrostatic pressure. It was also obvious that if the three companies operating at Toteco continued to draw 400,000 barrels a day from the field, it was but a matter of time until water would appear.

What Happened at Toteco

With this advance knowledge, and because the effect of Mexican production on the price of low-gravity crudes in the United States was regarded as highly important, THE OIL WEEKLY arranged with a friend in Mexico to keep a close tab on Toteco and send the editor a code cablegram "James has arrived" the day water first showed.

Time passed and the matter was forgotten. Then on the evening of July 3 a cablegram was delivered to THE OIL WEEKLY. It said "James has arrived." The arrangement meantime had been forgotten by the editor. He scratched his head—"Who was James and why the devil should we be interested in his arrival?" he inquired of himself. Then it came to him . . .

"Toteco!"

The chief executive of an American company with heavy holdings at Toteco was called on the phone.

"We understand that salt water has shown up at Toteco," the editor said, "and," but he got no further.

"Not a word of truth to it," was the rejoinder. "We would have heard about it if it had happened."

So the editor hung up the phone, puzzled. He could not believe that his friend had given him a bad tip. A few minutes later the phone rang. It was the chief executive.

"About that report on salt water at Toteco. What were you going to do with it? You don't go to press for several days. Were you going to give the story to the newspapers?" (This latter inquiry because THE OIL WEEKLY had kept the Associated Press tipped off on the progress of the Obregon revolution.)

The editor replied: "We don't go to press for several days, but we thought our friend (naming a man on a New York paper) might like to know it. After all, we can't hope to scoop the world with a weekly paper. Why do you ask?"

"Well, I lied to you. There is salt water at Toteco, and if you will hold off on giving the story to the New York paper until 8 o'clock day after tomorrow and be in my office at 8 o'clock day after tomorrow I'll have all the information you want."

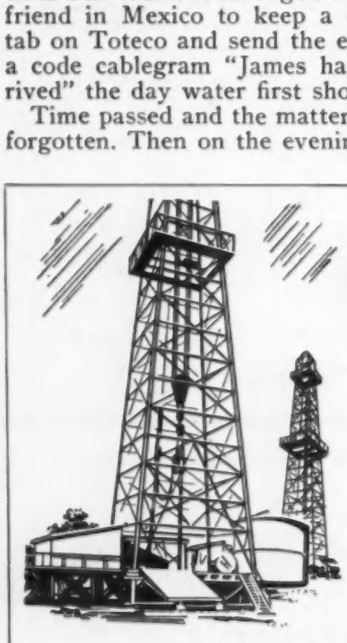
We knew of course that the New York Stock Exchange was closed the following day, July 4, and we knew why our executive friend wanted to wait until 10 o'clock of the morning of the fifth before the story was released, but we did not care if he did make a quarter of a million dollars, or a dime, selling certain stocks (not his own) short. What we wanted was the story. And this will explain to some men living today why they were so busy decoding messages from Tampico on the morning of July 5, 1922, and why I happened to be getting copies of the decoded messages.

The news was bad enough. Three companies had been drawing on Toteco the week before at the rate of 400,000 barrels a day. The salt water intrusion was so great that by agreement they cut it to 155,000 the next week, and within two or three weeks it was only about 100,000. What happened to certain stocks was a shame, because one of the companies had the bulk of its Mexican properties at Toteco, although it later developed some worthwhile properties elsewhere. Toteco, in its brief life of only a few months, produced 110,000,000 barrels, one well making more than 4,000,000.

But Toteco's going to water, while one company's grief, became other companies' joy, because it unquestionably saved the Texas-Louisiana Gulf Coast crude market.

Mexico reported many fine wells in 1922. In December Aguila was reported to have completed a 25,000-barrel well in the State of Vera Cruz, No. 18 Concepcion. The Huasteca's No. 2 Chapopote Nunez blew out in June, a big well, and Manager W. E. Green gave a lot of credit to Jack Brogen, tool pusher and George Dugger, assistant tool pusher, for bringing it under control.

I have always wondered where all of the boys who worked in Mexico went when the fields were shot later. Some went to Venezuela, I know, because one hot evening in April, in 1940, when accompanied by Jimmie Bradbury, Mene Grande Jefe at Maracaibo, I came into Encontrados, near the Colombian border in Venezuela,



Production Loans

When you need a loan on oil properties, remember us. Other oil men have found here the service they want—and we believe you will too.

Low cost oil production loans are a specialty of our bank.

THE LIBERTY STATE BANK

★ DALLAS ★

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

after a day and night trip up the torrid Catatumba river, George Dugger, in charge of Colombian Petroleum Company's warehouse at Encontrados, met us and the hospitality he extended will never be forgotten. George Dugger is of the breed who did things in the tropics.

The Association of Natural Gasoline Manufacturers had its first annual meeting in Tulsa in May of 1922, and D. E. Buchanan, whose voice has been lifted in many a song at annual meetings since, was elected president. W. M. Welsh was elected vice president and A. V. Bourque was elected secretary.

Crude Survey

One of the highlights of 1922 was the joint report of the American Association of Petroleum Geologists and the United States Geological Survey, on the reserves of the United States at that time. The report was a comprehensive one, and indicated that proven reserves, on January 1, 1922, amounted to 9,150,000,000 barrels. It was the first comprehensive report on reserves to have been made, although individual estimates had been made before.

Today at least three agencies make annual estimates on the reserves, and while these three estimates are arrived at by individual efforts, their totals are never far apart. Apparently everybody in the United States knows about these three estimates except the politicians in Washington who, for their own purposes, frequently distort the public mind into hysteria by drawing an estimate, suitable to their purposes, out of a governmental feed bag.

Standardization

Standardization of equipment was getting a great deal of discussion, preliminary to its being taken up as an official and well performed function of the American Petroleum Institute. Most people liked the idea, although some operators in California were afraid that the peculiar problems of that state would be forgotten.

At a meeting of the Tulsa chapter of the A.I.M.E. the president of the association announced that funds would be raised for a Lucas Medal to be awarded from time to time, for outstanding service, by the Petroleum Division of the institute. It was not until 1937 that the first award was made, it going to J. Edgar Pew, vice president of Sun Oil Company, and dean of the oil producing business. In 1938 it was awarded to H. L. Doherty; in 1940 it was awarded to E. DeGolyer and in 1941 to Conrad and Marcel Schlumberger of France.

Names in the News

The periodicals of 1922 were filled with the names of men who were doing things then—and now. For instance there is the news report of the promotion of Dan Moran from the managership of The Texas Company in Mexico to vice presidency in charge of production of The Texas Company. He was succeeded by Bert Hull. Moran is president of Continental Oil Company now and Bert Hull is president of The Texas Pipe Line Company.

A "personal mention" gave the news that Professor W. F. Cummings had gone to Mexico on a business trip. Professor Cummings was then 82 years old, a leading scientist of his time and one of the Southwest's greatest geologists—and at 82 the discomforts of a boom-time Tampico were just

It takes PERFORMANCE to HOLD FIRST PLACE
GATKE
GATKE DEEP-WELL WOVEN
• Stands the heat and holds in deep well drilling and tough maintenance service.
• Feeds off with uniform ease from the top of the hole all the way down.
• Wears unbelievably long and prolongs flange life.
• Furnished in Die-Pressed Blocks, Segments, and Band Lengths, or Woven-Moulded Combination Sets.
Throughout the oil fields GATKE Brake Lining has come to mean "The best that money can buy."
Successful operators agree that standardization on GATKE Brake Lining is the way to get real performance and lowest ton-mile costs.
That's why GATKE Brake Lining is predominantly supplied by manufacturers of Drilling and Production Rigs as original equipment.
Avoid substitutes. Your Rig manufacturers have GATKE Brake Lining that is engineered for the application.
FACTORY Warsaw, Ind.
FACTORY North Brookfield, Mass.
GATKE CORPORATION
228 N. La Salle St.
Chicago, Ill.

something to be taken in a day's work.

The first time we ever saw Wm. B. Way's name in print was in 1922 when, as secretary of the American Natural Gas Association, he managed a fine convention, with a wealth of exhibits, at Kansas City. Way now manages the International Petroleum Exposition at Tulsa.

The Bureau of Mines changes in those days brought to light names of men who have gone high in the oil business since. A. W. Ambrose, whose name has been mentioned in the record of previous years, was moving steadily up in the bureau, becoming assistant director in 1922.

The National Supply Company stores throughout the United States were closed a part of May 30, in memory of William Hardee, chairman of the board and one of the founders of the company, who had just passed away, and Oil Well Supply Company the same year lost its beloved Louis Sands.

T. E. Swigart, later prominent in A.P.I. standardization work, then with the U. S. Bureau of Mines, became superintendent at Bartlesville, succeeding H. H. Hill, who was moved to Denver to handle the Rocky Mountain affairs of the Bureau. Swigart is now president of Shell Pipe Line. Hill is with Standard Development Company.

Charles Hamilton, manager of Mexican Gulf at Tampico, was transferred to New York as assistant to Wallace, head of Gulf's foreign operations, Hamilton being succeeded by H. K. V. Thompkins. Wallace has since passed away, Hamilton is head of Gulf's foreign operations and Thompkins, after sojourns in Mexico, Texas and California, in executive capacity, is now a partner in an Ecuadorian oil concession.

Foreign oil news named a man who, if his press notices had not been exaggerated, should have gone far. Pierre Estines, described in the newspapers as "experimenter and scientist of note" announced that he had developed a method of locating oil which showed the very depth at which it would be found. He elected to try to solve the petroleum problem of France first, both in Europe and in Morocco, and never did get across with his idea. Which double meaning is intentional.

There is some doubt as to which was the thicker in 1922, the mud or the fake stock promotions. A correspondent writing from Lyonsville, Oklahoma, declared that the Fords in the field had to be equipped with periscopes. One month rigs were shut down because of the rain and mud and a couple of months later operations were slowed down there because of lack of water.

Arkansas mud has always been supposed to be of a type superior for stickiness and depth, to any other type of native American mud, but while Arkansas reports never showed more than four mules being drowned at one time in the middle of a road, Orange, Texas, capped the climax with a picture of six of the poor brutes drowned in an oil-field highway bog hole. When we see artists' conceptions of oil-field life in those days, with the streets filled with mud and a six-mule team pulling a wagon carrying a flatcar load of casing, we wish that they could have seen the sight I saw one day when a six-mule team load of pipe (four joints of pipe) could not make the grade on level ground.

The Promoters of 1922

As to the promoters, this was the year which was later investigated by the Postoffice Department, unfortunately after millions had been mulcted from the savings of the poor. Stock promotion publications sprang up and flourished, carrying to investors "news of the operations" and advertisements picturing marvelous returns to be had from oil stocks.

One promoter had his picture taken in front of a Fort Worth bank and ran an ad showing himself, in heroic size standing directly in front of the bank with the caption, "This bank stands squarely behind me!" When the bank protested he reminded the banker that he had a lot of money on deposit in that bank, that in the picture the bank did stand behind him because he stood in front of it, and that if they were so pernickety he would put his money in a bank which appreciated his business. The story goes that the bank removed its objection on the promoter's promise not to repeat the advertisement.

One company was organized in Fort Worth which named as its purpose the *promotion* of oil companies. Said this clever promoter to his prospects, "The real money to be made is in promoting oil companies. That kind of a company makes a good profit for the promoter even if the company's well is a dry hole!" "Get in on a real ground floor," the promoting promoter counseled, "where there is not a chance to lose!" And believe it or not that company had a big bank roll from stock sales when the federals moved in on it.

Another company with a lease in Arkansas, sent out by mail thousand of "telegrams" advising prospective stock buyers that "So and So's well just brought in, brings our lease a half a mile nearer production," and the way it was handled caused many to think that the lease was close to production. Actually, it was miles away and what had happened was that some company had made a half-mile extension to the pool by bringing in a well to the north!

The sales literature varied in nature from what appeared to be a gilt-edged offering of conservative stock, to flights of the imagination such as the following which is taken from actual literature of this period:

Hist, the Wildcat Queen

"Wild Cat Queen is roaming the woods of East Texas howling for red, red meat. She's long gone, this wildcat Queenie, for a killing to the tune of about a couple of millions of dollars.

"On that titanic domain of 6340 acres where up to now she has been mistress of all the wild, the hand of man has been laid. The Wildcat Tamer de luxe has come with his collossal machinery and his towering derrick to make this untamed sovereign of the salt domes of East Texas come up and eat out of his hand!"

The Wildcat Tamer de luxe (probably pronounced by the promoter as "deluxy"), the ad reveals, did not want a puny little 1000-barrel well, or even a medium sized one of 10,000 barrels. He would be content with nothing less than a 70,000-barrel well! It is amazing that copy such as has been described did pull, but we need not feel so proud, when we realize the mental heights which some radio programs attain twenty years later.

Equipment

[*Continued from page 92*]

practice of welding the joints to pipe was also introduced at that time, so as to prevent breakage of the pipe at the last engaged thread. This was followed closely by the development of other designs incorporating a mechanical support and seal between the tool joint and the pipe in addition to the threads. More recent improvements have included elimination of pipe threads by welding or making the tool joint integral with the drill pipe and development of joints which can be shrunk on the pipe.

Bit manufacturers have improved their products and contributed greatly to the reduction in drilling costs. Bits today are many times more serviceable, due to metallurgy and refinements in design, which have increased both their rate of penetration per hour and total footage they are capable of drilling without change. Studies of performance in various formations, have resulted in the design of bits especially suited for each type of stratum.

An important feature of modern high-speed deep drilling has been the use of extra long and heavy drill collars. As much as 360 feet of drill collar, composed of six 60-foot sections, have been used to control the weight and place it near bottom.

Rotary Mud Systems

Although the importance of drilling-mud characteristics was being stressed by a few leading engineers as far back as 1913 and 1915, it was not so long ago that mud materials were strictly those found on the well site. Now with greater knowledge of the physical and chemical properties of mud fluids, and recognition of their importance on drilling operations, advanced technique is employed in the preparation of native and synthetic drilling muds and in keeping them constantly conditioned. It is not uncommon to use thousands of sacks of various commercial materials now available to properly condition the weight and viscosity of the mud used for one well. Careful supervision of mud properties has become a regular part of the drilling operation, and most frequently is handled by trained technicians. For this purpose, many special mud-testing instruments have been devised that determine the weight and viscosity of the mud, so every small change may be recognized and corrected at once.

The efficiency of the mud-circulating system has been increased by development of vibrating screens or shakers that facilitate the removal of large and unwanted cuttings, and liberate gas bubbles from the returning mud stream. The practice of using one or more of these devices on each rotary rig has become standard practice with most operators since their introduction in the early 30's. Sometimes centrifugal separators or desanders are used to eliminate sand and gritty material. To further prevent contamination of conditioned mud, steel mud pits and troughs, covered to prevent addition of fluid due to rainfall, have made their appearance in recent years and are another step forward.

As wells have been drilled deeper and deeper, it has become desirable to circulate rotary mud at increasing pressures and in larger quantities. To permit this the mud hose and slush pump have been made stronger and more powerful, and interior openings throughout the circulation system have been enlarged and restricting parts have been eliminated. Pressures used 25 years ago generally were in the range of 300 pounds per square inch under normal drilling conditions, while today the average probably is in excess of 800 pounds. Of course, these pressures are exceeded by large margins under such special conditions as attempting to circulate a stuck drill stem free. Elimination of sharp bends and angles in the mud discharge lines has reduced friction, lowering pumping efforts and power consumption.

To withstand the increasing pressure, the rotary hose of 25 years ago, which generally was a good grade of wrapped-ply water hose with a wire reinforcement over the cover, has had its bursting range of 1000 to 1500 pounds per square inch boosted to more than 10,000 pounds. Because the wire cover wrapping had a tendency to slide down and bunch together at the bottom of the length, leaving part of the hose unsupported with the result it would burst, the first major step in the advancement of rubber rotary hose was to place the wire reinforcement under the cover and to use more plies of stronger fabric. Hose of the latter type had a bursting point of 2500 pounds, and was in general use until about 12 years ago. Again drilling pressures had increased to the point that hose life was extremely short, and this led to the development of the multiple-wire helix, the cable-wire and all-steel types of hose, which with improvements are still in use today.

Larger interior openings and non-friction flow characteristics are other major advancements in rotary hose. Whereas the hose of 25 years ago had a two-inch opening that was restricted by smaller end nipples, the modern hose has interior openings of three inches or more and the ends are so designed as to eliminate all restrictions to open flow.

Similar enlargements have been made in the interior openings of drill pipe and other parts of the circulation system, with the result that greater quantities of mud may be circulated at lower pressures than would be required otherwise.

The rotary-drilling rig operator of 1916 and thereabouts used a 10x6x12- or perhaps even a 10-inch stroke duplex cast-iron slush pump that was designed for a maximum discharge pressure of 350 pounds and steam pressure of 175 pounds. In many instances they were still fitted with valves developed for clear water service. Thereafter sizes were increased in rapid succession, until today slush pumps are available in both duplex and triplex types in strokes up to 24-inch and 3500-pound fluid pressures and 500-pound working steam pressure. cast iron has been discarded in favor of cast-steel in many instances. Unknown 25 years ago were relief valve protection and pressure gauges, so common today, and which have been such important elements in reducing the former excessive maintenance repair costs of slush pumps.

Because of the exceptionally high formation pressure encountered in drilling deep wells, a closed-circulating system may be used to help keep the well under control. Such systems rotate the drill pipe in a blowout preventer or pressure-

control head placed at the top of the casing, and the effectiveness of the hydrostatic head of the rising column of mud fluid is increased by maintaining a back pressure exerted by means of adjustable surface choke equipment. Hydraulic rotary tables capable of snubbing the drill pipe into the hole against the existing high pressures are used when controlled pressure drilling is employed.

Drilling Control Equipment

Since early days the control of increasingly higher pressures as wells attained greater depths constituted a serious problem, and many have been the attempts to design suitable apparatus for control while the well is being completed. There appear to have been two types of blowout preventers that had become popular by 1916. One of these was a cast-iron body with ram packing elements of flexible or semi-flexible material. Seal was effected solely by closeness of the fit. The other consisted simply of a truncated cone of lead bored to fit the pipe and split in half vertically, each half being attached to a hinged handle so it could be closed around the drill stem under a coupling, and then lowered into a bell nipple on top of the casing string.

By 1930 the really first successful cylindrical ram-type preventer with steel body, rubber packing elements, full pressure-operated units, automatic self-centering pipe rams, and devices that permitted raising, lowering and rotating of the drill stem had made its appearance.

In the past decade vast improvements have continued to be made, until blowout equipment is positive and dependable when properly selected, maintained, and operated. Advances in this period have increased the speed with which they can be closed and raised the pressure that can be controlled. Modern preventers are available for remote manual, hydraulic or even automatic operation by the well pressure itself. Devices for preventing the blowing out of wells through the drilling string have been introduced recently.

Cable-Tool Drilling

The greatest improvement in cable tool has been the adaption of steel to uses formerly met with iron and manila, followed by the improvement in the quality of steel and design.

Whereas 25 or perhaps 30 years ago, all cable drilling and fishing tools were made of iron, with the exception of the hard steel that was welded into the cutting end of the bit and the wearing insert of drilling jars, today all parts of the drilling string have swung 100 percent to steel. There has been constant improvement, though gradual, due to improved metals that have been developed.

For instance, the development of steel wire cables, and their substitution for manila cables, has been one of the greatest forward steps the industry has taken. Somewhere around 1908, it became a practice to use wire line to which a length of manila cable, known as a "cracker," connected drilling tools. This was to provide flexibility and permit proper rotation of tools. However, this has been supplanted largely by direct wire-line drilling, which came into use a few years later in the Mid-Continent. Direct wire-line drilling prompted the invention of the swivel type wire-line rope socket, which resulted in both proper line tension and tool rotation.

The development of the underreamer has been one of the important contributions to cable-tool drilling, in that it has made possible the changing of the casing seat from one location to another when water-bearing or cavey formations are encountered and it becomes desirable to lower the casing to another position. The development of the circulating method of cementing is another important advancement. This has been followed by development of various compounds and materials which aid in wall building to prevent caves. Following this, came development of wall-cementing devices, such as the cement spray gun or spray bailer. In this connection, introduction of spiral bits has been helpful by providing a drilling action that assists in plastering up the walls to prevent caving.

The development of calf wheels, gate-type elevators, floor spiders and pipe-embracing power-actuated tongs have resulted in much more efficient handling of casing on cable-tool rigs; longer, heavier string can be handled safely without changing the lines on the bull wheels.

Directional Drilling

Prior to about 1925 it was not an uncommon occurrence for rotary-drilled holes to vary as much as a 1000 feet or more from the vertical course despite comparatively shallow depths. These crooked holes caused much trouble, not only during drilling but later during the producing life of wells. The industry really became cognizant of the crooked-hole problem during the development of Seminole, in the middle 20's where crooked holes were abundant as every effort was devoted toward getting the well to the 4100-foot sand as rapidly as possible. Some of the wells even intercepted neighboring wells.

Although early recognizers of

CONGRATULATIONS

TO

THE OIL WEEKLY

ON ITS

SILVER ANNIVERSARY

BRIDWELL OIL COMPANY

WICHITA FALLS, TEXAS

the importance of such troubles were making acid-bottle surveys of deviations from vertical in the early 1920's and in about 1922, a survey apparatus based upon an improved method of orienting the drill system was devised, it was not until after 1925 that widespread use and development of oil well surveying instruments came about. Today there are available intricate but dependable instruments showing not only the degree of deviation from vertical but also the direction of the deviation.

During the late 20's much attention was given the subject of straight-hole drilling, with the American Petroleum Institute Division of Production taking a leading part. These studies showed that rate of circulation and rotation, and weight placed on the drilling bit were important factors in maintaining straight holes. Weight indicators came into general use, and have been of great assistance in this and other rig work. With these factors regulated, most wells today do not vary more than 2 degrees from vertical despite their greater depths, and most contracts specify a maximum allowable deflection of not more than 3 degrees. Where serious drift occurs, the hole is plugged back and redrilled, deflecting tools being used to correct the condition.

Experience with the crooked-hole problem led to development of the so-called controlled directional drilling, first used in the early 20's but not widely until 1927. In this work, the hole is purposely deflected from vertical to reach an objective point not directly below the derrick. It has proved advantageous in development of off-shore fields, where derricks are located on land and the bit directed beneath the sea to oil reservoirs; and where stratigraphic conditions are complex and erratic and deviation will permit completion of a producing well that might otherwise be abandoned. A spectacular use of controlled directional drilling is that of killing wild or cratered wells by drilling from a safe distance away to the bottom of the wild well and killing the flow with mud.

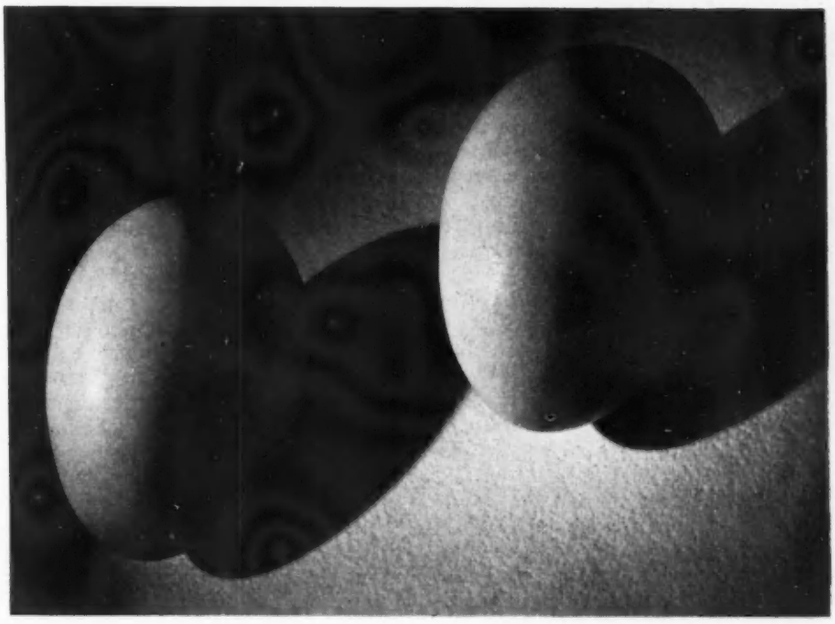
Coring Improvements

The forerunner of modern core-cutting tools made its appearance just about 25 years ago. A hollow saw-toothed bit and core basket were being used in soft formations. It was able to obtain a few inches of formation from the bottom of the hole, but many of the samples taken were destroyed by the heat generated during rotation. However, it led to the development of more efficient core-cutting tools.

Modern coring tools, available for either hard or soft formations, are adequately cooled by circulating fluid. Through improvements in design and quality of the cutters, coring bits have become highly efficient tools. Core barrels have been made longer, thus permitting taking of larger core samples. To eliminate frequent pulling of the drill pipe, wire-line coring, which had its inception in 1926, has been developed, whereby the cores are removed through the inside of the drill stem on a wire line.

Among recent developments are side-wall samplers, which take their cores from the sides of the drilled hole. Consequently, they may be used to take samples of formation already drilled with the regular drilling bit. Another innovation has been the "signaling" core tool, which indicates when the barrel is full by stopping circulation.

It is possible to obtain oriented cores, wherein not only is a core sample procured, but the amount and direction of the deviation of



SOME PEOPLE think all seismic exploration is alike. Fundamentally the basis of all seismic surveying is alike, but there is a vast difference in equipment, methods and personnel. And right there is where General's superiority asserts itself.

Why not talk it over with a member of General's staff today? A 'phone call, wire or letter will receive immediate attention.

The General Geophysical Co.

GULF BUILDING • HOUSTON

Trained and experienced field crews for prospecting anywhere in the United States and abroad.

the hole and the angle at which the core reposed are recorded. Such information is of importance to the geologist.

Extensive laboratory examination of cores is a development coming within the past decade, early investigation dealing with the relation of grain size, porosity and probable oil production. The common tests on cores are porosity, permeability and saturation, but many other tests are now conducted as well. In the desire for quick data from cores, portable truck-mounted laboratories with all necessary facilities for evaluation are now widely used.

With the past decade an electric method of logging, known as electrical coring, has come into extensive use. It determines the electrical resistivity of strata penetrated by the drill and also measures the electromotive force set up by infiltration of the drilling mud into porous strata, providing information as to the permeability of the beds. The conventional electric-logging method is used in uncased holes, but a very recent development is the gamma-ray logging process which can be used in holes already cased. A method whereby an electrical log may be made simultaneously with drilling operations, by using the drilling bit as an electrode, also has made its appearance in the oil fields.

Quite recently new logging methods have been made available that are based on analysis of drilling-mud returns. These show the quantity of oil, gas, and salinity encountered.

Until the middle twenties, it was necessary to set a string of casing in order to seal off the upper formations before a test could be made of any prospective producing sand that had been located. At that time equipment was introduced that could take a "drill stem" or "formation" test without the necessity of setting pipe. A packer and valve arrangement was placed on the lower end of the drill stem, and the drill stem was used as a conductor for the fluids. This constituted a major reduction in costs, for the practice of setting casing represented an unnecessary expense if the formation proved noncommercial.

Running Casing

Although depths were comparatively shallow as they are known today, considerable difficulty was being experienced in running casing strings 25 years ago. In the first place, the pipe itself was inadequate and frequently collapsed; but adoption of seamless casing proved adequate to meet the requirements of 1920 to 1925 for higher-carbon-steel pipe. Increasing depths has always been the main problem in casing practice, but seamless steel casing, with increasingly better steel, joint and thread qualities, has met the industry's needs. In recent years many casing strings have been joined by welding them in the field, but this is not a new procedure as it was used by Peoples Natural Gas Company in December, 1915, on its then-record-depth well near McDonald, Pennsylvania.

The problem of running casing of that time also was eased by the introduction of rotary underreamers, floating and guiding equipment for the pipe.

The first rotary underreamer was an adaptation of the cable-tool underreamer, which had been in use for a number of years. Due to torsional strain that would twist the cutters out of alignment and make it difficult to remove from the hole, there soon followed a tool in which the cutters were mounted on the side of the body and sufficiently supported to resist the torsional strains of rotary drilling. Thereafter, rotary reamers were made stronger and more efficient, and it was not long until roller cutters were employed that made it possible to underream in hard formations as well as the soft strata to which underreaming formerly had been limited.

Because of the buoyancy effect they impart, thereby reducing the weight of the string as it is lowered into the hole, the advent of floating equipment had a marked influence on the ability to run casing strings without encountering troubles. The first step in this direction occurred in 1922, and was the rotary hole guide shoe, which was fitted into the end of a plain casing shoe. This was immediately followed by a float-plug combination, which combined into an integral unit a casing shoe and a rotary hole guide with a back-pressure valve. A float shoe, containing a cast-iron poppet-type back-pressure valve inside the shoe, and float collars were the next progressive steps, and contributed much to casing running and cementing success. The next few years saw continued marked improvement in casing floating and cementing equipment, especially in the design and material from which they were made. More recent innovations have included side-ported whirler-type cement float shoes, some of which impart a downward and then an upward whirling action to the circulating fluid while running casing for the purpose of washing away bridges and removing some of the mud filter cake.

Cementing

Although the fundamental principle underlying the conventional form of modern cementing, that of moving the cement down through

WELLINGTON OIL COMPANY

OF DELAWARE

1108 South Texas Bank Building

SAN ANTONIO, TEXAS

the hole between plugs, was in use prior to 1916, there have been marked improvements since that time and a widening of cement applications.

The first real forward step was the introduction in 1924 of a method using synchronized pumps, a jet-vacuum mixer and a measuring line. This was indeed an important advancement, making it possible for very large quantities to be mixed and placed into the hole before the cement commenced setting. Until recently cement arrived at the well site in the customary paper sacks, but now bulk cement is offered in many regions. Here cement is taken from big storage bins to the field in unsacked form in specially designed trailer-mounted steel tanks.

Additional refinements in cementing technique, especially in the past 10 years have been developed at rapid rates. There is the squeeze cementing process, which has been widely used in recent years. By setting a cement retainer at the proper depth, the desired amount of cement may be forced by pressure into a restricted section of the formation, thus selecting the most favorable section of the producing horizon. This method is being used to reduce high gas-oil ratios, shut off water, repair casing, and for plug back work. Another development has been the multi-stage cementing method, whereby cement can be placed behind the casing at two or more different levels to assure proper distribution. The full-hole cementer and other systems have made their appearance in comparatively recent years.

Recent years have witnessed the accumulation of considerable data indicating many cement failures may be attributed to the mud filter cake preventing proper bonding of the slurry with the formation. Wash-down whirler-type float shoes, chemical agents, and abrasive centering devices that scrape the mud from the walls have been helpful in reducing troubles from this source.

Back in 1916 standard Portland cement was used for oil wells. Finer grinding in manufacture now produces cements made specially for oil well work that have rapid setting and hardening properties. On the other hand, where occasion demands, such as in deep wells with high temperatures, reagents or special cements are available that tend to retard the setting of cement, permitting greater time to place the cement behind the casing string before initial set starts. Some of these slower-setting cements have quick-hardening qualities once the initial set begins. Introduction of special oil-well cements and subsequent steady improvement have reduced the time of waiting for cement to harden from two weeks to only a few days at most, allowing quicker drilling out of the cement plug and thereby providing a great saving in time and money.

Recently a device for measuring and recording the irregularities and cavities in open holes has proved helpful in determining the amount of cement required to fill a given distance behind the casing. Some surprising variations in diameter of holes have been found in some formations, which probably accounts in many instances for the previous failure of cement to rise behind the casing as far as calculated.

Many are the advancements in completion equipment, which today provide a wide selectivity in methods. Prior to 1916 most wells used the open-hole completion method, in which the casing was set above the producing formation. Some wells were using the casing perforator, an inside cutting device for ripping the

Speaking of History

In 1915
In Wyoming

Carl J. Hochenauer was selling supplies and tubular goods to the operators in the Salt Creek, Big Muddy, Elk Basin and Grass Creek fields.

In 1941
Throughout the Midcontinent

We are still selling and serving the petroleum industry.

TEXOMA SUPPLY COMPANY

CARL J. HOCHENAUER, Pres.

PHILTOWER BLDG. TULSA, OKLA.

casing after it had been set through the producing formation. It was at about this time that the use of screens became popular in the coastal regions of Texas, Louisiana and California, where the formations were of an unconsolidated nature. However, it has been only recently that scientific methods of selecting screen openings have been applied, and manufacturers have made many important improvements.

An important completion development has been that of the gun perforator first employed in the oil fields in 1932. It was an immediate success, and has become widely used. Originally conceived as a plug-back means that would open the casing to cemented-off formations, it soon resulted in the so-called popular selective method of initial completion, in which casing or blank liner is set through the sand and then perforated opposite the more heavily saturated portion. In this way it has been successful in reducing gas/oil ratios and controlling water production. Many additional applications for gun perforating have developed.

Since acceptance of gun perforating, new and different steels in gun chambers and bullets themselves have been necessary because of better steels used in casing. The tendency of the industry to set smaller casing has made necessary continued advancement in gun design, so they will be small enough to run inside the pipe string and yet stand up under the terrific explosive forces required to penetrate the pipe. Important progress has been made in bullet design so they will be applicable to additional usages. Fourteen different types, sizes and characteristics of bullets have been a real achievement. Designing and building electrically set bridging plugs to be used in conjunction with the perforator have made appreciable economies in plug-back programs. A new contribution from which much may be heard in the future is the progress made in developing guns to be used inside of tubing, shooting holes as small as 1/16 inch in diameter for varying the gas pressure. Casing is actually being removed by gun perforation today, opening another new field of application. Development of special guns for squeeze cementing and formation sampling likewise is a recent achievement.

In recent years there has been a growing use of gravel packing as a means of protecting screens against clogging, crushing or excessive cutting action. Gravel packing is applicable either with perforated casing or screens, or by prepacked liners that have made their appearance on the market.

A recent innovation in completion practices has been the use of acid-soluble and drillable pipe sections. Set opposite upper producing zones they provide a means of easily and efficiently opening them up for production at later dates.

In contrast with modern methods, the bringing in of a new well in 1916 and for many years afterwards was frequently a spectacular event, as it was still a common practice in most areas to permit it to blow wild until it had cleaned itself. Although the system of washing in had been conceived and was being used in connection with screen completions, it was some time later before it became generally accepted.

Whereas 12 years or less ago the tubing of flowing wells was limited, it has had general adoption everywhere in recent years. The development of a method of snubbing in high-pressure wells, in 1928, had an important influence on this trend. This did away with

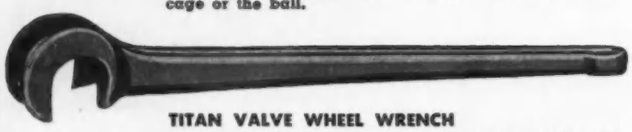
NEW ADDITIONS TO THE

"Most Complete Line of Tongs in the World"

PETOL TOOLS — TITAN TOOLS

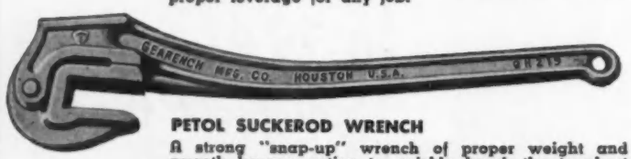
TITAN VALVE CAGE WRENCH

A strong, high-grade alloy steel wrench for handling the toughest valve cage jobs. Each wrench will handle many sizes of cages without danger of damage to the cage or the ball.



TITAN VALVE WHEEL WRENCH

Used to provide extra leverage on hand wheels while closing and opening valves. Wrench fits many sizes and shapes of wheels. Available in lengths to give proper leverage for any job.



PETOL SUCKEROD WRENCH

A strong "snap-up" wrench of proper weight and smooth hammer-action to quickly break the toughest rod or coupling joint. Light spring plunger holds jaw in closed position to make it easier to put on or take off.

ROTARY AND CASING TONGS

Light, compact tongs for handling both tool joints and casing used on portable rigs. Only a few seconds required for changing from one size to another. Tongs fitted with quick-change replaceable teeth inserts.

PETOL TUBING SWAB

Most practical, most flexible, most efficient and most economical swab on the market. Falls faster and smoother than any other swab. No metal parts to strip off.

Write for details.

GEARENCH MFG. COMPANY

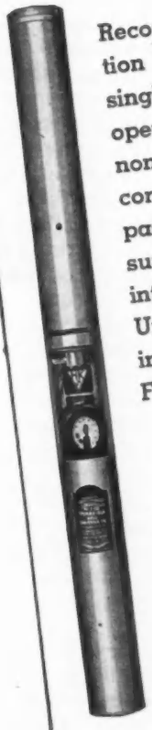
HOUSTON, TEXAS, U. S. A.

Export: 74 Trinity Place, New York, N. Y.

dominate the field of Well Surveying

The H-K

DIRECTIONAL MAGNETIC SINGLE SHOT



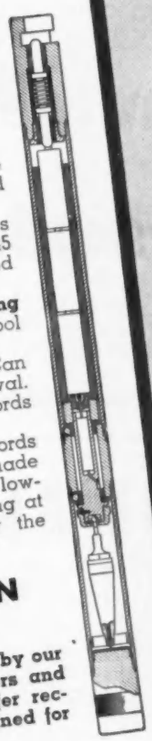
Records inclination and direction photographically on single paper discs. Used in open holes or in drill pipe, with non-magnetic sub or wire line core barrel. Has buoyant compass support and triangularly supported crosshair ring and interchangeable Inclination Units. Accurate and self-checking. Reasonable daily rates. Fully patented.

H-K SURVEYS

For those who prefer to have records made by engineers trained for this service, we have established an H-K Survey Service at standard and reasonable rates.

The New E-C

(ELECTRO-CHEMICAL) INCLINOMETER



A truly great advance in recording hole deviation. Operated by dry cell batteries on sound electro-chemical principles. Self-checking. Low in rental charge and operating cost.

ADVANTAGES:

No timing device needed. No trouble with clocks or synchronized watches.

Minimum recording time. Produces accurate records in as little as 45 seconds. Can be raised or lowered at 800-1000 feet per minute.

Operates on ordinary measuring line. Readily passes through tool joints.

Permanent records — instantly. Can be read immediately on removal. No development required. Records are indestructible.

Multiple Recording. Several records at various depths can be made each time the instrument is lowered into the hole. The reading at each depth is identified by the size of dot on the record.

E-C INCLINATION SURVEYS

Rendered at reasonable rates by our service engineers to producers and drilling contractors who prefer records made by engineers trained for this service.

BRANCH OFFICES:

HOUSTON, LUBBOCK, CORPUS CHRISTI, AND FORT WORTH, TEXAS; OKLAHOMA CITY, OKLAHOMA; LONG BEACH AND BAKERSFIELD, CALIFORNIA; LAFAYETTE, LOUISIANA

the necessity of having to kill the well with mud before tubing strings could be run against high pressures. Use of tubing has improved oil recovery and conserved immeasurable quantities of gas.

Improvements in quality and design of tubing have been significant, due to better metallurgical and manufacturing processes. Longer joints have reduced the time and labor in tubing pulling and running jobs, and seamless tubing and improved threads have made the strings many times stronger.

The quality and design of tubing heads and other equipment used for supporting and packing off the tubing string have been improved also. For example, tubing catchers. Twenty-five years ago the tubing catcher was a massive affair with small slips. Newer catchers are well designed, compact units with many improvements including direct connection of the slips to weight and centering devices.

Gravity Surveys

Sixteen years' experience in making and interpreting gravity surveys in the United States and foreign countries.

Gravity Meter Exploration Co.

and

Torsion Balance Exploration Co.

W. G. Saville • J. P. Schumacher • A. C. Pagan

1348 ESPERSON BLDG. • HOUSTON, TEXAS

ROWAN DRILLING CO.

OIL WELL CONTRACTORS

•

Main Office
FORT WORTH, TEXAS
Ph. 2-2394
L.D. 193

Branch Office
HOUSTON, TEXAS
Ph. C. 4-2518

The past 25 years also have added new requirements to equipment designed for controlling the flow after the well is completed.

It was a fairly simple matter to make valves stronger by increasing thickness and size of its parts, nor was it difficult to substitute materials of greater strength. A harder problem was to incorporate resistance to wear multiplied many times by the high velocity accompanying great volumes at high pressures. This called for radical changes in design, and this has been accomplished so well that the industry is assured safety with efficiency and ease of operation in handling pressures undreamed of 25 years ago, when 1000 pounds pressure was found rarely. At present 4000 pounds is not considered unusual and pressures in excess of 5000 pounds are taken as routine jobs, while valves capable of operating safely and practically at 10,000 pounds are available.

Stimulating Methods

The industry today uses several methods of stimulating production, and equipment and service organizations have played prominent parts in the advancements that have been attained.

Chemicals were used in wells to stimulate production as early as 1894, but it was not until 1932 that the process and technique progressed sufficiently to make commercial applications possible on a large scale. At that time inhibitors were developed that retarded the action of acid on steel, thus giving protection to the metallic parts in the well. At the same time, a method was developed for confining the acid solution to selected specific horizons. Acidizing became an established practice at once, and since then thousands and thousands of wells are treated annually. Some of the more important recent developments are stabilizers to prevent secondary precipitation, surface-tension reducing compounds, emulsion preventers, chemicals to regulate the reaction rates of acid on various types of reservoir rocks, and improved inhibitors.

Although the first oil well was shot way back in 1865 at Oil Creek, Pennsylvania, and the method had widespread adoption at once, for many years the practice remained unchanged. The principal improvements in shooting technique have been the manner of placing and tamping the charge and in methods of detonating the explosive. The

first improvement was that employing electrically-operated detonators. Today the industry has the time bomb, which may be set to explode in half an hour to 24 hours after the shot is placed, while advanced tamping procedures cause the full force of the explosion to be directed against the desired area.

Both acidizing and shooting are used successfully in increasing the output of previously completed producers as well as in initial completions.

Twenty five years ago marked the beginning of the era in which the importance of the energy in gas produced with oil was to be recognized. It saw the beginning of repressuring operations. As the importance of reservoir energies came to be better understood, a practice known as pressure maintenance was commenced in 1926 and so-called cycling operations in distillate fields was started in 1936. Unlike repressuring, pressure maintenance and cycling operations consisted of the injection of gas before the reservoir energy was depleted or materially reduced. Consequently, it required means of injecting against high pressures, and compressor manufacturers have steadily met the demand for greater horsepower.

Greatly improved materials and refinements in design have enabled compressor manufacturers to increase the horsepower without enlarging the weight in proportion. Through the introduction of angle-type units, the amount of space required per horsepower has been reduced greatly, some manufacturers reporting a saving of 48.8 percent in floor space of 1000-horsepower units. The modern compressor has practically all its moving parts enclosed, providing protection for workmen and an assistance in obtaining better lubrication.

Great strides have been made in artificial lifting of production. Old methods have been improved and new methods have given a wider range of selectivity. Consequently, oil can be lifted from much greater depths and more efficiently than 25 years ago.

Mechanical pumping methods were well established early in the industry's history, but the maximum depth from which oil could be lifted by sucker-rod pumps was considered to be 5000 feet even as recently as 10 years ago. Today wells bottomed at 8000 feet are being commercially operated by this method. Although the principle of mechanical pumping remains the same, modern units present a marked contrast to the old band-wheel drive of earlier days. The standard rig equipment for pumping wells on the beam has been replaced largely by individual all-steel reduction-geared units. Individual units were just coming into popularity during the years immediately preceding 1920. Continued improvements have been made in these units. Crank-arm and rotary-type counterbalances have replaced beam counterbalances to a large extent. Prime movers are either an electric motor, a single-cylinder or multi-cylinder internal-combustion engine. A wide range of selectivity in horsepower capacities is available. Sucker rods have been improved, giving much longer service than previously. The same applies to pumps. The old band-wheel central power to a considerable degree has been replaced by geared powers since 1930.

Much attention is paid to the efficiency of oil-well pumping, and this has been an important factor

SEABOARD OIL COMPANY

OF DELAWARE

NEW YORK OFFICE
39 Broadway

CONTINENTAL BUILDING
DALLAS, TEXAS

CHAS. P. CARTTER, President
ERNEST B. RUBSAMEN, JR., Secy. & Treas.

TRINITY DRILLERS

INCORPORATED

Phone L. D. 433

SUITE 1720—ALAMO NATIONAL BANK BLDG.

SAN ANTONIO, TEXAS

•

TWENTY YEARS' EXPERIENCE IN SOUTH TEXAS

•

EQUIPPED WITH HEAVY & LIGHT
STEAM BUTANE AND DIESEL RIGS

in the improved operations known today. Weighing wells by dynamometers has become a common practice within the last 15 years. It has enabled engineers to determine the proper operating conditions for each well and to select the right type of equipment. Through properly adjusted counterbalancing, length of stroke, rate of piston travel, etc., mechanical troubles have been reduced substantially.

Since the earliest days of the industry, belts have been a popular means of transmitting motive power for many different purposes, including pumping machinery. The duck used in modern oil-field transmission belting is stronger, more flexible and is more readily impregnated with high quality rubber than that of 25 years ago. The driving surface, too, has been improved, providing greater resistance to wear and better adhesion to pulley surfaces. Endless belts have been developed in which there are no splices or seams, thus eliminating the need of clamps. Belts incorporating cord plies instead of duck plies, for great strength and flexibility, have also been developed. V-belts represent another instance of the great forward strides made by manufacturers.

Considerable attention has been devoted to elimination of shocks created by the motion of mechanical pumping units. In addition to proper installation and operation based on dynamometer studies, some mechanical devices have been introduced. A pneumatic pumping system is used by some operators, in which the sucker rods are actuated by the direct application of compressed fluid or air to a specially designed cylinder suspended in the derrick. Some modern pumping units are equipped with air-cylinders or rubber shock absorbers for the same purpose.

Several new pumping methods have been introduced. One is a hydraulically operated rodless pump that is gaining much favor in the last few years. Oil pumped under pressure from the surface down a small tubing string actuates a bottom-hole pump. Submergible electrical centrifugal pumps, in which a motor placed in the hole is supplied with electric power through special cables from the surface, have been developed and used successfully in many regions.

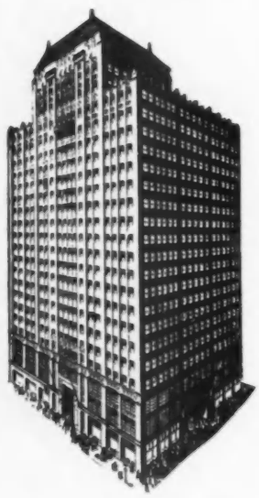
Owing to a series of noted improvements, the usefulness of gas-lift installations has been extended until applicable to a wide range of conditions. Air lift was used around 1901 and gas lift was introduced by 1909, but until 1923 was not accepted generally.

The intermittent system of gas lifting was introduced just 25 years ago, and during the early 20's came to be used to a considerable degree. This was the first step toward making gas lift applicable to wells other than those with high fluid levels producing large volumes. Since 1930 such mechanical developments as kick-off or flow valves, stage and plunger type lifts, and subsurface intermitters have further widened gas-lift adaptability until wells of small caliber, even when reservoir pressures are low, are successfully using the method. Automatic and surface control of flow valves has been another important development.

Advances in equipment have indeed played an important role in almost unbelievable strides made in oil field operations the past quarter century. Were it not for these improvements the industry would not be producing its present record volume at the low cost of today.

25th ANNIVERSARY OF A WORKING ALLIANCE

When is an alliance **more** than a mere scrap of paper? When it takes the form of friendly, effective co-operation like that extended to Texas' great oil industry for the past 25 years by the Alamo National Bank of San Antonio, the bank that understands the oil industry, its various problems, and their solution.



ALAMO NATIONAL BANK
OF SAN ANTONIO
Member Federal Deposit Insurance Corp.

R. A. Wilson, Pres.

THE OFFICERS OF

J. M. Shimer, V. Pres.

EQUIPMENT ENGINEERS, Inc.
DALLAS, TEXAS

ANNOUNCE THE ABOVE CORPORATE NAME TO REPLACE THAT OF

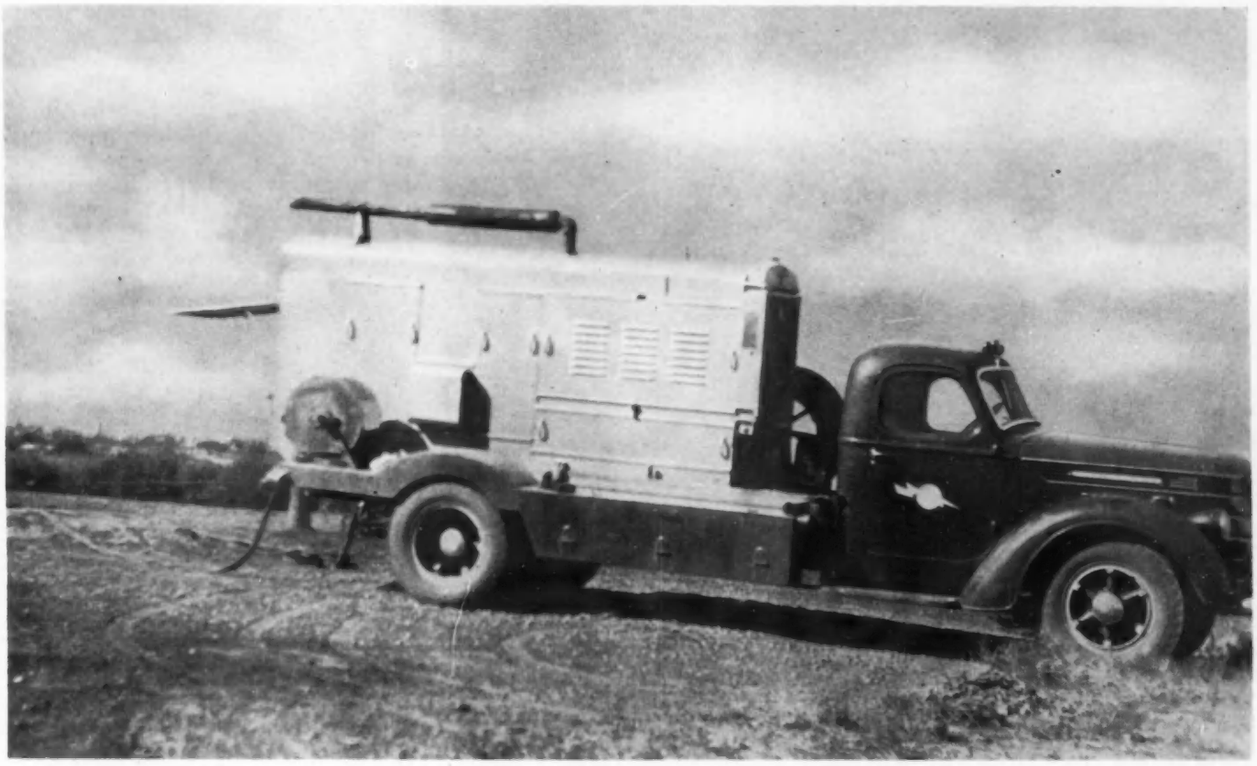
KIBELE MANUFACTURING COMPANY

AND WILL CONTINUE THE MANUFACTURE AND SALE OF SWABS, PACKERS, TUBING CATCHERS, ETC. UNDER THE NEW TRADE NAME

"Double E"

R. A. WILSON, Pres. J. M. SHIMER, Vice. Pres. A. P. BROWN, Sec'y-Treas.

ELECTRICAL ELTRECO TREATING CO.



ORGANIZATION AND EQUIPMENT

NOW SERVING

TEXAS PANHANDLE

LET US HELP SOLVE YOUR WELL

AND FLOW LINE PARAFFIN PROBLEM

804 CONTINENTAL BLDG.
DALLAS, TEXAS

BOX 940
PAMPA, TEXAS

Practical Operating Hints for

1. LUBRICATION

Welded Grill on Steam Line Holds Lube Cans And Provides Heating in Severe Weather

This welded iron frame, with expanded mesh platform, is welded to steam line to improve heat transfer to lubricant containers and improve pouring quality.

THE problem of keeping the larger cans or containers of heavy lubricating oils and greases in usable condition during the colder months is being solved by one company in a practical manner.

At a point on the mud pump steam line near where it passes nearest to the supply house or tool rack, a six-foot section of the insulation was removed from the top portion of the pipe. A platform made on 1-inch angle iron, and covered over the bottom with a heavy grade of hardware cloth was then welded together to rest upon this open section. At each corner on the lower side, in order to insure stability of the platform, a short length of sucker rod was welded so that it would project a short way into a metal ring previously welded to the metal sheath insulation covering. The rings may be ½-inch sections cut from 1-inch pipe.

Keeping the heavy lubricating supplies on this handy heating platform saves considerable work while servicing drilling equipment and aids in eliminating the danger of possible faulty lubrication of vital bearings because of cold oil.

2. MUD HANDLING

Cranes of Reinforced Pipe Carry Hoists

CHAIN HOISTS mounted on cranes directly attached to pump skids are used by one Gulf Coast operator to simplify regulation of the mud suction pipes, and to constitute a time-saving element in rigging up. As the cranes are connected with the pump skids, when it is necessary to move pumps, the suctions are drawn up by means of the chain hoists and the entire assembly transported as a single unit to new location, set in place, and the suctions lowered.

Each crane is set loosely inside a 2-foot piece of 6-inch pipe welded at a convenient place on the skid. The crane is constructed of a single piece of 4-inch drill pipe, standing upright in the socket provided by the short 6-inch pipe, and is bent at a 90° angle near its center to allow the upper half to extend horizontaly over the mud pit above the suction pipe. Welded bracing, of 3-inch pipe, is placed inside the 90° arc to afford maximum support.

The end of the crane is equipped with an eye bolted through the pipe, and to it is fastened a chain hoist bearing a chain of sufficient length to permit its attachment to hook on top of suction pipe directly below. By means of the hoist, position of the suction in the pit is easily altered, and is raised entirely out of the pit when moving rig.

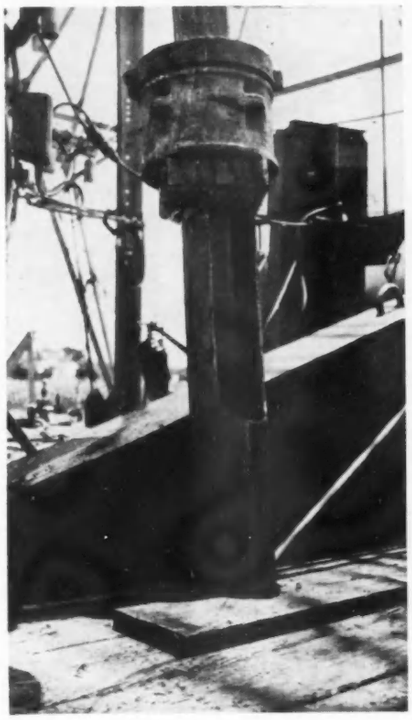
A secondary use of the apparatus is provided by the swivel action of the cranes that permits their free rotation in the 6-inch sockets. By unfastening attachment to the suction line, the cranes are swung or pivoted around and the hoists used in lifting heavy equipment over the relatively wide area encompassed.

Set into short sockets of pipe rigidly welded to pump skids, these braced cranes afford anchorage for chain hoists controlling mud suction footvalve height.

THE DRILLING RIG . . .

3. RATHOLE

Slotted Pipe Reduces Kelly Handling Load



Slot in rathole pipe and swivel provision permit control of kelly without high lift.

TO AVOID hindrance of swivel and elevator bails during trips in and out of hole with drill pipe, or while adding joints of pipe to the drill string, one operator keeps top of rathole conductor pipe at an unusually high level above floor to raise swivel and attendant equipment sufficiently to keep them out of the way of the drilling crew. As the top of the rathole pipe may be too high for easy stabbing of the kelly to be lowered into rathole, a grooved slot approximately 30 inches long is cut in the top, of ample width to permit easy entrance of the kelly. Thus, it is unnecessary to raise kelly above the slot for stabbing, but the drive bushing is supported on top of the pipe, raising it the extra height over the floor.

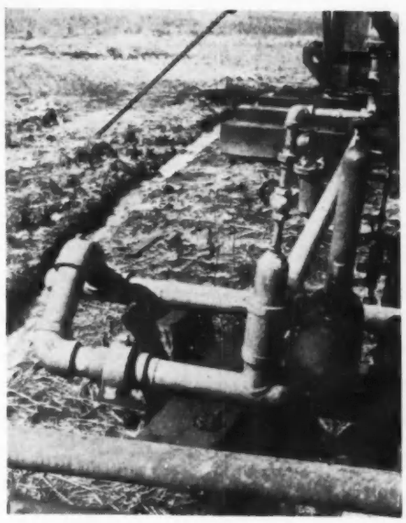
The rathole conductor pipe sets freely in position, and two one-inch holes are bored through opposite walls below the bottom of the slot. A bar placed through the holes enables rotating when kelly is placed in slot. When the pipe is turned 180°, the slot is then facing in an opposite direction from the rotary, and the kelly is then held in place by the pipe without effort by the crew, and is easily lowered to bottom.

4. STEAM LINES

Reversed Swing Bend Absorbs Line Stresses

EXPANSION changes and settlement of pump foundations, blocking and boiler header all tend to stress the joints in the steam line and to foster leaks at take-off points and directional changes in the line.

By setting a 90-degree angle at the end of the main steam line, and then bringing the line back again toward the boilers, provision is included for absorbing all the changes which may occur during the normal drilling life of the set-up. Torsional stresses are all taken up by the joints in the 90-degree bend, and the flexibility of the return line will permit it to shift in any direction to accommodate expansion changes in the laterals to mud pumps and to derrick floor.



Screwed fittings in steam line absorb changes in length and relieve manifold.

Use of a riser for the drawworks steam line introduces screwed joints at either end of the transverse line, enabling the line shifts to make up or back off the screwed threads slightly without leakage and without strain on the main in either direction.

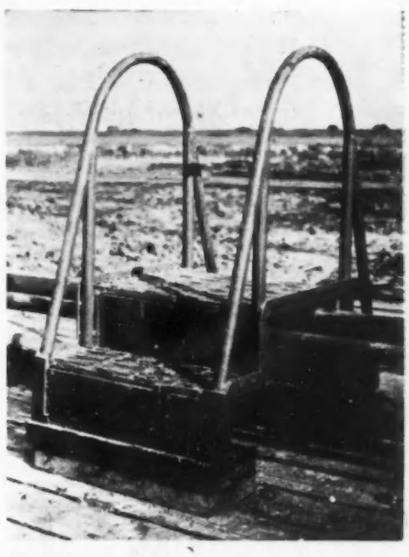
5. SAFETY

Pipe and Grill Stile Safeguards Crossings

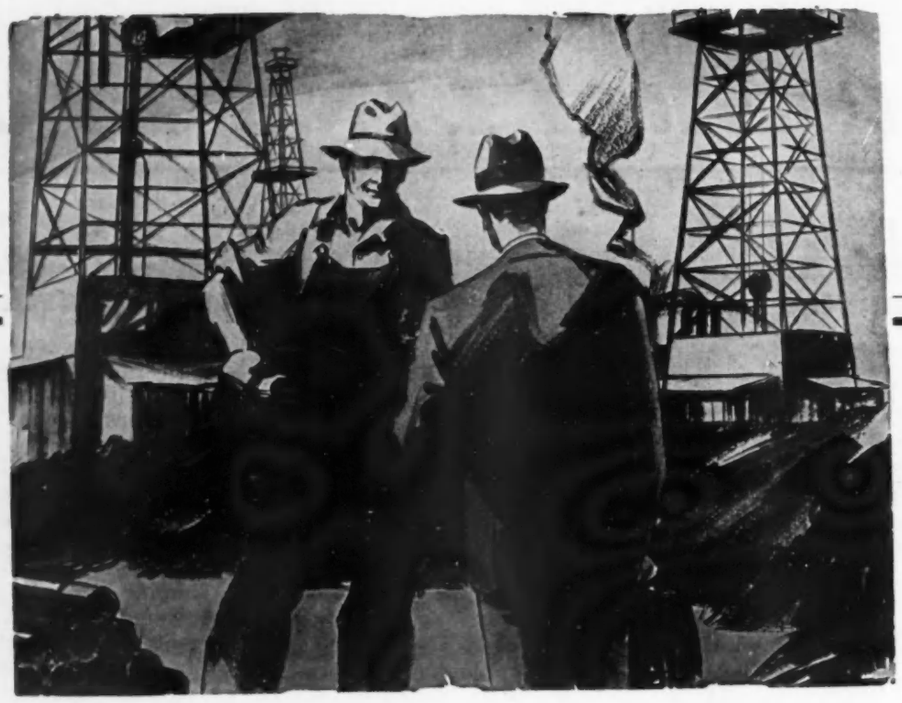
A STILE may be constructed from all-steel material as aid to members of the drilling crew in crossing steam and water lines extending from boilers to rig as protection to the pipes and men, and to aid transporting equipment across the lines. One operator made such a stile by using plate steel for the framework and safety grilles for the steps and top platform. A stair frame of steel angles is welded and the grille is suspended between. Vertical pieces of sheet steel are welded behind the grill to comprise the back of the steps. The steps are about 2 feet long, and each is 10 inches high and 10 inches wide.

Rails made from small pipe or from heavy rod material are constructed for safety, and are bent to the desired shape and reinforced by means of upright rods. Height of the steps is about 20 inches, which is ample to cross steam lines of ordinary construction; however, if the lines are higher, the stile is elevated by placing wooden blocks to raise to the required height.

Use of grille steps and platform adds to safety of the crew by offering better foothold in wet weather. Pipes are protected when moving equipment, and workers are not apt to step on hot lines.



Welded handrail, mesh foot plates assure safety in overpass across steam main.



Congratulating

THE OIL WEEKLY

ON THEIR 25TH ANNIVERSARY . . . .

THE publication of an outstanding magazine for a quarter of a century is indeed an achievement of which to be proud. During this entire period we have read reliable news, informative articles, and thoughtful editorials in The OIL WEEKLY.

We know that a company has a right to be proud at the end of twenty-five years of conscientious effort. We felt the same way six years ago when we celebrated our twenty-fifth anniversary. Here's hoping that your company and ours will enjoy the second quarter century of work as much as we did the first, and that our companies will be of even more beneficial service to the great oil industry.

●

CONVENIENTLY LOCATED NORVELL-WILDER STORES AT

BEAUMONT	TEXAS	SHREVEPORT	LOUISIANA
HOUSTON	TEXAS	LAKE CHARLES	LOUISIANA
FT. WORTH	TEXAS		
CORPUS CHRISTI	TEXAS	OFFICES	
MONAHANS	TEXAS	DALLAS	TEXAS
CONROE	TEXAS	TULSA	OKLAHOMA

Norvell-Wilder
Supply Company

HIGHLIGHTS IN THE WEEK'S NEWS

Control

Bottom-Hole Pressure Revision Advocated

Revision of the methods of taking bottom-hole pressures for determining potentials of oil wells in the Wasson field, Yoakum County, was advocated at a hearing before the Texas Railroad Commission last week. American Liberty Oil Company urged that the commission abandon its bottom-hole pressure surveys of wells which are operating on gas lift or air lift and that it give the true potential allowance to these wells.

The rules now provides no method by which potentials may be taken on air or gas lift wells and to these wells are assigned the minimum potential allowance. The American Liberty advocated assigning to these wells their true potentials or a maximum of 500 barrels. The company complained that the method now in use did not give them their fair share of the potential allowance.

S. L. McDowell, representing American Liberty, contended that the bottom-hole pressure tests on these wells were unnecessary and that they were hazardous in that bombs frequently stuck in the wells and required long fishing jobs and the possible loss of an oil well. As a substitute, he advocated assigning to these wells a pressure which would be an average of the two nearest flowing wells which were tested.

Kansas Sets Allowable At 257,000 Barrels Daily

Kansas Corporation Commission has set the November allowable at 257,000 barrels per day. This figure, a new top allowable for the state, is 500 barrels per day above the current allowable. Of the total, 253,000 barrels per day is attributed to wells now being produced, and is a figure equivalent to the United States Bureau of Mines market demand estimate for the coming month. The balance of 4,500 barrels per day will be derived from new wells.

Commission Approves 237 Drilling Permits

Permits for drilling 237 new wells in Texas were approved last week by the Texas Railroad Commission, 76 less than were authorized the week before.

Leading the state was the Southwest Texas District with 85 permits, including 30 in Jackson County. Panhandle operators were allowed to drill 28 new locations, 17 of which were in Hutchinson County.

The commission authorized the drilling of 34 additional wells in West Texas, while 18 were reported from the West Central Texas area.

North Texas reported 34 new locations, including 13 in Clay County, and Gulf Coast operators were allowed to drill 19 additional wells.

Four permits were granted in the East Texas field, with one in Smith and three in Gregg County, while the commission approved 15 locations in the remainder of the East Central Texas area.

East Coast Stations May Make Night Closing Permanent

Possibility exists that filling stations on the Eastern Seaboard may voluntarily adopt night closing as a permanent policy despite Petroleum Coordinator Ickes' order lifting the 7 to 7 curfew. Both dealers and employes are reported as favoring cessation of the long hours hitherto followed in most of the stations.

Adoption of the new policy, however, would have to overcome labor disputes created by the shortened hours. Last week, a union of filling station and parking lot operators in the New York City metropolitan district was negotiating with filling station owners to settle differences over working hours and wages. At the same time an organization of filling station proprietors upheld the continuation of the night closing plan. It was declared that dealers' organizations of 12 eastern states favor such continuation.

A survey showed that voluntary observance of the curfew ranged from 70 percent in the metropolitan district to 100 percent in Rhode Island, 80 percent in Virginia, 95 percent in Massachusetts and 100 percent in upper New York state.

Reports from Washington indicate that numerous dealers consider never returning to all-night service. Some of these, however, considered that competition may force a return to such service. An association of gasoline retailers voted in Philadelphia last week to retain the 7 to 7 curfew.

News Index

General:

Allowables 222
Associations 220
Prices 238
Washington 225

Markets-Statistics 238

Men in News 264

U. S. Field Operations:

California 253
Completions 255
East Texas 249
Illinois 245
Kansas 246
Kentucky 254
Louisiana Coast 251
Mississippi 253
Nebraska 254
New Mexico 252
North Louisiana 252
North Texas 246
Oklahoma 245
Southwest Texas 250
Texas Gulf Coast 251
West Texas 248
Wildcat Development 260

Transport

Humble Asks Permission To Abandon Pipe Line

Humble Oil & Refining Company has requested permission from the Texas Railroad Commission to abandon its pipe line from the Charco Redondo field, Zapata County. This is the first application of its kind which the commission has heard.

Testimony was presented to the commission showing that the line has operated at a loss since its installation in 1927 and that so far this year it has transported only 1665 barrels of oil. Approximately 51,600 feet of line would be removed under the plan proposed. Humble attorneys said that the pipe line would be removed and used in other fields where Humble would connect with wells having far higher production. Thus it would be an aid in the national defense program at a time when pipe is difficult to secure.

Companies producing in the field would be expected to transport their oil by truck as part of them are doing now. Humble has three stations in the area which would probably buy the oil.

Pipe Line Makes First Runs From Abell Field

The Texas New Mexico Pipe Line Company made initial crude runs October 29 from the Abell field, Pecos County, largest unconnected area in West Texas without a direct outlet.

The company built 19-mile 6-inch discharge line from the Crane station, Crane County, to NEc Lot 2, H&GN, Sec 30, Blk 9, Pecos County, where oil will be received by gravity from the Abell and Conry-Davis areas, involving an aggregate of 6 miles 6-in and 5 miles 4-in gravity lines.

Pipe Shortage Delays Michigan Gas Line Work

Construction of a 260-mile natural gas line, planned by Panhandle Eastern Pipe Line Company, in conjunction with a program announced last summer by Consumers Power Company, may be delayed until next spring or later.

So far Panhandle has not been able to get 56,000 tons of pipe, for the construction in Michigan and loops on the line extending into Texas-Kansas gas fields. Work was to have started six weeks ago.

Louisiana's Allowable Set at 347,058 Barrels

Louisiana's oil allowable for November has been set at 347,058 bbls, divided between North Louisiana and South Louisiana as follows: North Louisiana, 70,678 bbls; South Louisiana, 276,380 bbls.

Associations

Contractors Will Meet At Dallas November 13-14

First annual meeting of the American Association of Oilwell Drilling Contractors will be held in Dallas, November 13 and 14.

Open sessions will be held only on Friday, November 14. All directors and committeemen will attend meetings on Thursday, November 13, to discuss questions or problems on labor relations, wage and hour organization of local chapters, priorities, increase in membership, employees' welfare, transportation and highway laws, need for budgeting association expenses, drilling and contract form, compensation insurance, safety engineering, drilling practices, improvement in equipment, membership rates, accounting, railroad freight rates, policy, relation and cooperation with American Petroleum Institute, Independent Petroleum Association, Mid-Continent Oil and Gas Association, taxes and cable tool drilling practices.

Program for the Meeting

Thursday Morning, November 13—1. Directors' meeting. 2. Meetings of all committees.

Friday Morning, Nov. 14—Harry L. Edwards, presiding, Harry L. Edwards Drilling Company, Houston Texas. 1. President's address—J. E. Brantly, Drilling & Exploration Company, Dallas, Texas. 2. The Contracting Industry, Its Past, Present and Future—Frank E. Stickle, Mabee Oil & Gas Company, Tulsa, Oklahoma. 3. Trends in Drilling Machinery and Equipment, John M. Shimer, Equipment Engineers, Inc., Dallas, Texas. 4. Drilling Practices—C. W. DeLancey, Humble Oil & Refining Company, Houston, Texas. 5. Accounting Practices—H. A. Pickens, McCamman, Morriss & Pickens, Fort Worth, Texas. 6. Contracting Personnel—Harry L. Edwards, Harry L. Edwards Drilling Company, Houston, Texas.

Friday Afternoon—1. Principal Speaker—(To be announced). 2. Insurance Compensation—B. F. King, Pacific Employers' Insurance Company, Houston, Texas. 3. Hidden Dollars on Accident Costs—R. C. Ledbetter, Manager, Safety Department, Texas Employers' Insurance Association. 4. Cooperation Within the Industry—Joseph Zeppa, Delta Drilling Company, Tyler, Texas. 5. Business meeting.

Friday Evening—Banquet. Toastmaster (To be announced). Introduction and Installation of New Officers. Priorities and the Drilling Contractor—W. L. Childs, Reed Roller Bit Company, Houston, Texas. Guest Speaker—Colonel Ernest O. Thompson, Railroad Commission of Texas, Austin, Texas.

Petroleum Engineers Club Sponsors Meetings

Petroleum Engineers Club, of the University of Oklahoma, a student associate chapter of A.I.M.E., is sponsoring a series of petroleum engineering conferences during the 1941-42 school year.

Purpose is to honor graduates and give the students of petroleum and allied subjects benefit of open discussion.

First conference was held October 24 and 25, 1941, at Norman. Subject was "Cementing and Acidizing." Guest lecturers were W. D. Owsley and Phil Montgomery of Halliburton Oil Well Cementing Company; J. Harold Adkison and Phil Lehnhard of Dowell Incorporated.

The second conference will be held November 21 and 22, 1941, at the University of Oklahoma. The subject will be "Core Analysis and Electric Logging." Guest lecturers to appear are: James A. Lewis will discuss "The Interpretation of Core Analysis Measurements" on November 21. The speaker is vice president of Core Laboratories, Dallas; Hubert Bale, will discuss "Electric Logging and Gun Perforating in Conjunction with Core Analysis" on November 22. The speaker is a consulting geologist in Oklahoma City.

Bureau Report Shows Oil Production Peak in August

Domestic crude oil production hit an all-time high in August with a daily average output of 3,914,700 barrels and a total for the month of 121,354,000 barrels, it is disclosed by the monthly report of the Bureau of Mines.

The daily average was approximately 100,000 barrels above that of July and 455,000 barrels above that for August, 1940. The month's output was 3,103,000 barrels above July and 10,831,000 barrels greater than in August of last year.

"In general," the bureau commented, "crude oil production gained everywhere except in Oklahoma. That state reported a substantial gain in July but in August the daily average fell back to 429,300 barrels, compared with 425,300 barrels in August, 1940. The largest increase (about 50,000 barrels in daily average) in August was in Texas but the gain in Illinois was relatively larger. The increase in Kansas, though small, established a new record.

"Although production increased substantially, the gain in crude runs to stills in August was even larger. This, in conjunction with reduced imports and heavier exports, resulted in a larger withdrawal (5,372,000 barrels) from crude inventories in August than in July, or in any month since August, 1939."

Daily average crude runs to stills, crossing the 4,000,000-barrel mark for the first time, set a new record at 4,018,000 barrels. The yields of both gasoline and distillate were off, with residual and unfinished oils showing compensatory gains.

The bureau's report showed domestic demand for motor fuel in August of 62,944,000 barrels, slightly below the preceding month but about 13 percent above a normal for August, 1940. Exports of motor fuel, partly estimated, increased sharply, largely because of lend-lease activities, and amounted to 2,700,000 barrels, including aviation grades. The output of motor fuel was at a new peak, with the consequence, it was pointed out, that the decline in gasoline stocks was less than anticipated, and total stocks of finished and unfinished gasoline on August 31 were 80,377,000 barrels, or about 3,300,000 barrels under the same date last year. For the East Coast, the survey showed 20,537,000 barrels against 21,886,000 barrels a year ago.

Production of aviation gasoline also was at a high level, 1,969,000 barrels for the month against 1,640,000 barrels for July, it was stated. Transfers to regular gasoline dropped to 53,000 barrels from 84,000 barrels in July, but exports increased from 153,000 to 777,000 barrels. Domestic demand showed little change at 1,267,000 barrels against 1,253,000 barrels, but stocks declined from 7,491,000 barrels July 31 to 7,363,000 barrels at the close of August.

The cumulative domestic demand for fuel oil, both light and heavy, is running around 13 percent above 1940, the bureau found. Domestic demand for kerosine was about the same, but the 1941 gain for lubricating oils has been close to 33 percent.

Bureau of Labor Statistics figures placed the price index for petroleum products in August at 61.4 compared with 60.9 in July and 49.2 in August, 1940. The crude-oil capacity represented in the report was 4,481,000 barrels, giving an operating ratio of 90 percent for the month, against 89 percent in July and 81 percent in August, 1940.

August Refinery Runs

Daily average runs to stills in August were 4,018,000 barrels, an increase of 109,000 barrels over July, while total receipts of crude at refineries were only 3,997,000 barrels, including 140,000 barrels of foreign oil, it was reported October 16 by the Bureau of Mines.

Receipts of foreign crude for the month were 32,000 barrels a day under the July level, the bureau said.

The August report showed total crude receipts of 123,920,000 barrels, of which 119,593,000 barrels was domestic and 4,327,000 barrels foreign, with crude runs to stills of 124,572,000 barrels and fuel and losses 208,000 barrels.

As a result, refinery stocks dropped by 860,000 barrels, from 53,631,000 to 52,771,000 barrels, and at the close of the month were about 4,000,000 barrels under the stocks of a year ago.

Arkansas Permits

Only two drilling permits were issued last week by the Arkansas Oil and Gas Commission. La Fayette County—Barnsdall Oil Company, Edgar Bond, 1, 660 E & 662 S NWc SW SW 11-15-24; and Ouachita County—E. L. Foster, Mrs. Carrie Miller 1, 330 N&E SWc NW SW SW 4-15-18.

Jay Oil Company has transferred to Southern Oil Company its drilling permit for Trice 1, C NE SW 16-2s-3w, Arkansas County.

Louisiana Commission Issues 36 Permits

Thirty-six drilling permits were issued last week by the Louisiana Conservation Commission of which 24 were in North Louisiana, in the following parishes: Bossier, 4; Caddo, 3; Catahoula, 1; LaSalle, 14; Natchitoches, 1; and Tensas, 1. The 12 in south Louisiana were in the following parishes: Acadia, 1; Allen, 1; Iberville, 1; Jefferson Davis, 1; La Fourche, 1; St. Mary, 4; Terrebonne, 2; and Vermilion, 1.

OPC Halts Use of Metal Containers by Oil Industry

Use of metal containers by the oil industry was halted by the OPC October 31 in a recommendation suggesting use of wood, glass, paper and other materials as substitutes, as a means of saving large quantities of steel.

Complete figures on the metal use of the industry for containers are not available but drum manufacturers reported that in 1940 they sold 310,950 tons of steel containers to the industry.

In the recommendation, which he signed as acting coordinator in the absence of Ickes, Deputy Coordinator Davies declared that "The needs of the defense program for steel and other metals are so urgent and in excess of the available supply that the petroleum industry must make more steel and other metals available for such defense needs by conducting its operations in such manner as to use the minimum quantity of steel and other metals and by using substitute materials wherever and whenever possible.

"Such needs are so great," he said, "that the allocation of steel to drum manufacturers has already been reduced to one-third and the requirements of oil companies constitute about 57 percent of the normal production of drum manufacturers.

"It is also necessary to curtail the use of tin cans, tubes and other metal containers now being employed in distribution of petroleum and its products.

"Wood, glass, paper and other materials offer practicable substitutes for steel, tin and other metal containers and the manufacturers of containers from such substitutes are in position to accept orders and make immediate shipments of wood barrels and of other containers within a reasonable time."

Mexican Oil Shipments To U. S. Show Increase

Mexican oil exports to the United States in 1940 recovered sharply from the effects of the 1938 expropriations, it is disclosed by a report on Mexican foreign trade for last year, compiled by the Pan American Union.

Shipments of crude oil to the United States, the report showed, increased from 801,531 cubic meters valued at 16,952,163 pesos in 1939 to 1,762,923 cubic meters valued at 36,427,618 pesos in 1940, and exports of combustible petroleum rose from 60,165 cubic meters valued at 1,378,290 pesos to 150,292 cubic meters valued at 2,747,452 pesos.

Japan and Italy also increased their takings of Mexican oil, the former increasing her purchases from 27,827 cubic meters valued at 709,593 pesos to 121,434 cubic meters valued at 2,961,208 pesos. Italy took considerably more combustible petroleum in 1940—134,152 cubic meters valued at 4,304,335 pesos against 95,659 cubic meters valued at 2,230,830 pesos in 1939—but less crude, which, however, cost more—366,970 cubic meters valued at 12,019,876 pesos against 419,410 cubic meters valued at 10,673,822 pesos.

Italy also took 6552 tons of asphalt valued at 397,812 pesos against 2008 tons valued at 94,320 pesos in the previous year, and 977,785 kilos of pitch valued at 229,836 pesos against none in 1939, but dropped her takings of gas oil from 10,153 cubic meters valued at 385,525 pesos to 3322 cubic meters valued at 185,875 pesos.

The United Kingdom, which in 1939 took 615,751 cubic meters of crude, 135,647 of gasoline, 117,948 of gas oil and 197,829 of combustible petroleum, took no oil products whatever in 1940 and cut her total purchases in Mexico from 52,895,610 to 9,585,880 pesos, of which 8,497,599 pesos was for zinc, the only commodity bought in any quantity.

There were no oil shipments to Sweden, which in 1939 took 22,030 cubic meters of gasoline, 19,244 of crude and 3429 of gas oil; or to Spain, which in 1939 took 10,575 cubic meters of combustible petroleum and 7840 of crude, but Norway took 28,887 cubic meters of crude valued at 691,844 pesos and 2193 cubic meters of gasoline valued at 205,747 pesos, against none in the preceding year, and 7657 cubic meters of gas oil valued at 324,856 pesos against 9415 cubic meters valued at 386,825 pesos, and 1856 cubic meters of combustible petroleum valued at 44,640 pesos against 9028 cubic meters valued at 198,996 pesos.

Total Mexican oil exports, the Union survey showed, exceeded 89,000,000 pesos against 82,000,000 pesos in 1939, made up of the following items: Crude 2,328,113 cubic meters valued at 53,119,886 pesos against 1,971,257 meters valued at 45,220,673 pesos; gas oil, 240,207 meters valued at 11,727,644 pesos against 288,045 meters valued at 12,975,676 pesos; kerosene, 241,095 meters valued at 9,201,868 pesos against 7107 meters valued at 258,137 pesos; combustible petroleum, 339,539 meters valued at 8,174,315 pesos against 476,691 meters valued at 11,210,594 pesos; asphalt, 81,172 tons valued at 3,875,416 pesos against 75,368 tons valued at 3,444,646 pesos; gasoline, 72,251 cubic meters valued at 3,120,604 pesos against 239,379 meters valued at 9,357,770 pesos; and lubricants, 353 meters valued at 157,578 pesos against 463 meters valued at 138,064.

Although one of the great producing areas, Mexico imported considerable quantities of oil, lubricating oils and greases, in fact, being the 17th most important import commodity, with receipts of 14,455,379 kilos valued at 6,255,185 pesos in 1940 against 9,516,735 kilos valued at 4,564,198 pesos in 1939.

She also imported 10,983,909 kilos of paraffin valued at 5,200,782 pesos against 11,311,147 kilos valued at 3,560,917 pesos; 86,980,283 liters of combustible petroleum valued at 3,393,955 pesos against 33,265,654 liters valued at 925,227 pesos; 170,541,644 cubic meters of natural gas valued at 1,839,604 pesos against 112,929,270 meters valued at 2,169,030 pesos; 11,418,161 liters of gasoline valued at 1,202,498 pesos against 12,466,005 liters valued at 1,291,444 pesos, and 17,784,240 liters of crude valued at 774,474 pesos against 15,398,381 liters valued at 705,589 pesos.

Texas Corporation and Principal Subsidiary Merge

President W. S. S. Rodgers of The Texas Corporation, has announced that the board of directors has voted to merge into the corporation its principal operating subsidiary, The Texas Company, and to change the name of The Texas Corporation to The Texas Company. Rodgers declared the purpose of the merger is to simplify the corporate structure and advance efficiency and economies.

R. A. Broomfield, Sr., Barnsdall Executive, Retires

R. A. Broomfield, Sr., executive vice president and general manager of California activities of Barnsdall Oil Company, retired October 31, and was succeeded by William C. Whaley, a vice president of the company, who has been serving as general superintendent of the California operations.

Broomfield had been associated with Barnsdall interests for 38 years, entering the oil business as treasurer of the Guffey Petroleum & Refining Company, Port Arthur, Texas. In 1903 he became associated with T. N. Barnsdall, and served in Pennsylvania and Mid-Continent fields until 1909, when he went to California as resident manager of Barnsdall interests there.

He has been a member of the California Oil and Gas Association since 1924, serving as president in 1929. He was elected a director of the American Petroleum Institute in 1930, and has been a director of the Independent Petroleum Association of America since 1920. He was one of the organizers of the Oil Producers Agency of California; has been a director of this association since its inception, and served as its president from November, 1935 to April, 1937.

Whaley has been with Barnsdall 17 years. He is active on many industry committees, and is currently serving as chairman of the allocation subcommittee of the Conservation Committee of California Oil Producers. He has assisted in California proration efforts since the start of a voluntary program in 1929 and was chosen as one of 12 members of the Production Committee of District 5 by the Petroleum Coordinator's office. He is president of California Safety Board, Inc., an industry accident prevention organization, and is an active member of several trade associations.

Colombia Law Makers Attempt Minerals Title Clarification

The hydrocarbon committee of the Colombian house of representatives has reported on the oil law revision bill introduced by the head of the Colombian petroleum ministry. No substantial changes in the measure were made by the committee. The house has yet to vote on the bill, most of the provisions of which are favored by foreign oil companies as shortening the legal procedure required in the course of litigation arising over applications for concessions.

Pedro A. Gomez Naranjo, chief justice of the supreme court of Colombia during 1935-1940, has just published a book on Colombian oil law. It consists of a critical analysis of the present law and supreme court decisions, and advocates a more liberal interpretation of the law for the purpose of encouraging drilling on private lands. A specific recommendation is that congress should pass a law declaring that private titles passing between individuals prior to October 11, 1921, are acceptable proof that the passage of land carries with it the oil rights. Drilling on private property has so far been discouraged by difficulty of establishing ownership of subsoil rights in Colombia.

Allowables

Allowables Less Strict But Still Conservative

Several of the leading producing states set allowables for November slightly above the estimates of demand for crude within their borders, as forecast by the Bureau of Mines. But for the 8 prorated states, aggregate daily allowables for the month are 4021 barrels under indicated daily average demand for crude from those states; and it is likely that actual crude production will be somewhat short of market requirements, and that the deficiency will be made up by further withdrawals from storage.

However, the underproduction apparently will be somewhat less than in October, as the allowables of the 8 prorated states for that month were 31,295 barrels under indicated demand.

Under the October allowables there occurred a continuation of substantial withdrawals from storage, crude stocks having declined from 246,144,000 barrels as of October 4 to 243,605,000 barrels on October 18; although figures are not available on subsequent weekly changes.

While the allowables of the 8 prorated states, as given in the accompanying table, call for aggregate underproduction of about 4000 barrels daily, it should be noted that California actually has been averaging around 650,000 barrels daily and may be expected to continue to do so, in which event the state in reality will exceed its indicated demand about 25,000 barrels daily, instead of underproducing 13,500 barrels as it would do under strict adherence to the adopted allowable of 613,200 barrels daily. When this situation is taken into account, it is indicated that the 8 prorated states actually will produce more than estimated demand. Furthermore, there will be a small boosting of actual production above the allowables here tabulated through the usual build-up of the allowables themselves as new wells are completed in Texas, Louisiana, and some of the other states.

Also tending to prevent national underproduction will be output above estimated demand in Illinois, if that state maintains the average rate of production of the past month. Whereas Illinois has been assigned a demand quota of 408,100 barrels daily for November, the state actually produced on the average 421,350 barrels daily in the four weeks ended October 25. If that same rate were continued, Illinois would overproduce its demand estimate 13,250 barrels daily in November.

Crude Oil Production Lower But Above Indicated Demand

Oil wells of the United States turned out approximately 30,000 barrels per day less in the week ended November 1 than in the previous week, as crude production declined to 4,079,700 barrels daily. The output still was, however, 67,700 barrels above the indicated daily average demand for domestic crude in October, as estimated by the Bureau of Mines.

Kansas was importantly responsible for the decrease, having produced about 18,000 barrels a day less than the week before in averaging 237,350 barrels daily. California accounted for approximately 12,000 barrels of decrease, having averaged 631,800 daily.

In other states, decreases and increases closely balanced against each other. Oklahoma was up 11,000 barrels to 436,500 daily, but Illinois was down 3000 barrels to 419,250, while there were small declines also in Louisiana, New Mexico, and Mississippi. Texas showed practically no change.

Venezuelan Pipe Line Nears Completion in Leona Area

Mene Grande Oil Company is well along in construction of its 53-kilometer, 8-inch pipe line from the Leona area field to the Mene Grande trunk line and expects completion by the first of next year. Four wells are drilling in the field. The company is drilling below 8630 feet in Quiamare 1, a wildcat 30 miles south of Guanta.

Extension Gives Turner Valley 20-Mile Length

With the largest oil well in Turner Valley, Alberta, just completed about 18 miles north of the South West flank field proven up by the Turner Valley Royalties discovery well in 1936, and another large well completed south of Turner Valley Royalties, the valley proven field is now approximately 20 miles long.

At the extreme north of this area are Major Oil Investments' 2, now being tested after yielding at the rate of 200 barrels an hour; Ace Royalties, producing more than 1110 barrels a day prior to being given a quota; and the Home and Alberta Oil Income wells with quotas in excess of 800 barrels daily.

At the extreme south of the field, Hudson's Bay 6, drilled by the Northwest Company, Imperial Oil subsidiary, is producing almost 100 barrels an hour prior to being given a quota by the conservation board.

Thus the Turner Valley oil field future prospects have been brightened considerably. There is no sign that the northerly productive limits have been reached and many oil men are now inclined to believe that the southern boundary of the field may be extended a considerable distance, too.

Drilling of 10 wells in the Dina field 30 miles south of Lloydminster, Saskatchewan, by the Omega Syndicate of Toronto is to start at once, according to an announcement recently.

Only two wells have been drilled in this southern field and both are producing an exceptionally heavy grade of oil. They were drilled in 1937 by the Lloydminster Dina Company, and have been on production ever since.

The oil is considered of a high quality. It is a non-viscous lubricant suitable for refining into transformer oil, which hitherto has been wholly imported from the United States to Canada.

The wells to be drilled this fall will be completed with rotary equipment, the first time such will have been used in either the Dina field or the Lloydminster area.

Alberta Gasoline Stocks Drop to Low Level

The amount of gasoline in storage at Alberta refineries was reported recently in oil circles to be at the lowest level in years.

Seriousness of the situation was reflected in the August report of the provincial oil and gas conservation board just issued.

On August 1, 1941, the last date upon which official figures in Alberta are available, the amount of refined petroleum products in store in the province dropped below 1,000,000 barrels for the first time since December, 1940, when storage figures were first released by the board.

Alberta started 1941 with 1,189,922 barrels of refined petroleum products in store, gradually increasing to 1,547,059 barrels in April.

Since then there has been a fairly rapid decline to August 1, 1941, when storage for only 941,072 barrels was reported. This decline is declared unofficially, to have continued up to the present time.

Allowables Slightly Liberalized for November, But Continued Production Under Demand Foreshadowed

(Barrels Daily)

STATE	Bureau of Mines Estimate of Demand for October	Bureau of Mines Estimate of Demand for November	State Allowable Beginning of November	Difference of November Allowable From Demand	Percent Difference of November Allowable From Demand
Arkansas	78,200	76,500	73,653	— 2,847	— 3.7
California	613,200	626,700	[1]613,200	—13,500	— 2.1
Kansas	253,000	253,500	257,000	+ 3,500	+ 1.4
Louisiana	332,000	333,200	347,058	+13,858	+ 4.1
Michigan	44,100	47,400	[2]57,550	+10,150	+21.4
New Mexico	114,600	115,200	116,500	+ 1,300	+ 1.1
Oklahoma	481,500	469,400	[3]428,000	—41,400	— 8.8
Texas	1,420,100	1,454,700	[4]1,479,618	+24,918	+ 1.7
Total 8 Prorated States	3,336,700	3,376,600	3,372,579	— 4,021	— 0.1
Illinois	399,200	408,100	[5]421,350	+13,250	+ 3.2
Other States	277,000	285,300	.....	.....	.....
Total United States	4,012,900	4,070,000	.....	.....	.....

[1] Recommendation of Conservation Committee of California Oil Producers.
[2] No definite state allowable fixed under prescribed regulations; figure shown here represents actual production in four weeks ended October 25.
[3] Unchanged from September and October.
[4] Calculated daily average of actual production at beginning of month, allowing for usual underproduction of 3½ percent below net allowable, which was figured at 1,533,283 barrels daily as of November 1. However, allowable normally increases as new wells are completed, and consequently, actual daily average production for month may be expected to be slightly greater than average as calculated for November 1. Under November order, most Texas fields were ordered shut down November 2, 8, 9, 11, 16, 23, 27 and 30.
[5] Average level at which unprorated Illinois produced during 4 weeks ended October 25.

Why Stocks Should Be Increased

An Editorial by L. J. LOGAN, Associate Editor

SWIFTLY and violently unfolding events are making it increasingly imperative that the oil industry abandon temporarily its peace-time policy of operating with minimum above-ground stocks of crude oil and refined products.

Extraordinary developments are making it increasingly advisable for the industry to enter, instead, upon an emergency, war-time policy of expanding storage to include substantial supplies which can be used in any pinch that may arise suddenly.

During the past decade, through development and application of proration, the industry has streamlined its operations virtually to the point of perfection with regard to eliminating surplus above-ground stocks and the waste and loss that they entail.

Surplus stocks have been so thoroughly liquidated that the consumers of petroleum are practically on a hand-to-mouth basis, with existing inventories largely representing working stocks needed in transportation, processing, and distribution.

It is almost as if the consumer stood at the terminus of a pipe line, taking from it the barrel of oil that came out when the producer brought forth a barrel from the ground and turned it into the other end of the line.

Accuracy of this analogy is attested by both statistics and experience.

Measured in terms of days' supply at prevailing rates of consumption, above-ground stocks of all oils are very little more than half as large as they were consistently during the 1920's and early 1930's, *and they are materially smaller than during the World War.*

The stocks of all oils as of August 31, 1941, represented only 129 days' supply on the basis of daily average demand in the first 8 months of this year and 122 days' supply on the basis of demand in August. These figures have been reached through steady cutting down from above 200 days' supply prior to 1934. In almost every year from 1922 to 1933, inclusive, the industry maintained stocks representing from 220 to 230 days' supply. At the end of 1918 it had on hand 165 days' supply.

Stocks of crude oil have been reduced relatively more than those of refined products. The crude stocks as of October 18, 1941, represented only 65 days' supply on the basis of daily average demand for crude in the first 8 months of this year and *60 days' supply on the basis of demand in August.* The crude storage is about the same in volume now as at the end of 1939, following the Mid-Continent shutdowns, but demand was not as great then, and stocks at that time represented 69 days' supply. To these levels the crude stocks have been reduced from around 150 days' supply maintained from 1920 through 1933.

Crude stocks were very close to minimum requirements even two years ago, with the inventory about the same as now and demand not as great, as evidenced through the half-month shutdowns of the fields of the Southwest by the state authorities. The shutdowns forced most refiners to dip to the bottoms of their storage tanks and even then some of them had to close down their plants at least partially until they could get more crude.

Similarly, the recent East Coast scarcity demonstrated that stocks of refined products, as well as crude, were very little in excess of operating requirements, and that they could not be materially reduced without interruption of supplies to the consumers.

Viewed strictly from the standpoint of industrial efficiency, as might be quite proper in normal times, this situation with regard to stocks seems almost ideal. *But the storage situation appears highly precarious when considered from the standpoint of safety in assuring continued, uninterrupted delivery of oils to meet any and all needs that may be imposed during this period of swiftly arising contingencies.*

Several probabilities and possibilities stand out as especially important reasons why more abundant stocks now seem advisable. In the first place, a further sharp expansion of demand for petroleum is foreshadowed; and unless the stocks situation is to become even more precarious than at present, the inventories of crude and products will have to be augmented to take care of the increases in requirements. It is conservatively estimated that 1942 will bring an increase of 6 or 7 percent in demand, as compared with 1941; and some conservative forecasters concede that the increase may be 10 or 12 percent.

A second important consideration indicating desirability of larger stocks is the possibility of further diversions of American tankers from domestic service to war use, which would be less serious if inventories included larger contingent reserves. Despite the relief afforded by return of some boats from Britain, the industry has been warned to be prepared at any time to give up more ships for war use if necessary.

Also to be taken into account, specifically, is the possibility of an interruption of oil shipments from South America and the West Indies, through submarine warfare. Despite taxes on imports, this country has depended materially on Venezuela, Mexico, and other countries to supply its requirements for heavy-crude and fuel oil; and if submarine activity should seriously interfere with tanker movements between those countries and the United States, then requirements of domestic oils would be substantially increased, and supplies above ground would help to meet such demand. Likewise, an interruption of shipments from South America and the West Indies to England would put an additional strain upon American facilities.

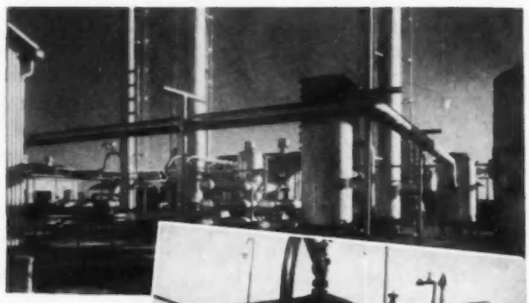
Last to be mentioned here, but not of least importance, is the fact that any additions to stocks now would be insurance against a future when output may fall short of demand through lack of materials. Scarcity of materials might lead to a bottleneck particularly in refining, as runs are close to capacity. But deficiency of materials for drilling might soon cause difficulty, also, inasmuch as Texas and Louisiana apparently are the only states that could maintain production very long without normal drilling.

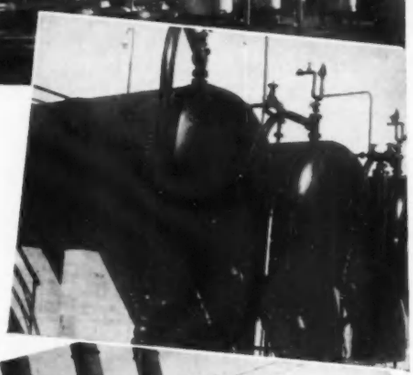
Any shortage of oil which may arise will not be alleviated by crude or products which could have been produced, refined, and stored, but which were not.

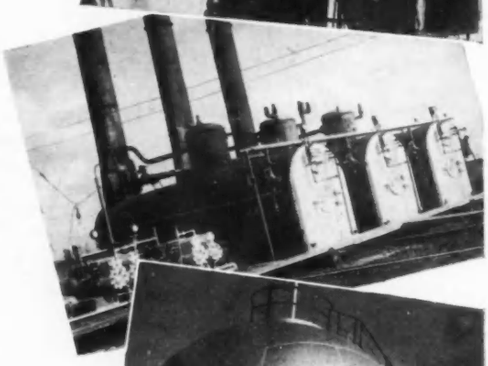
RUST-BAN STOPS CORROSION

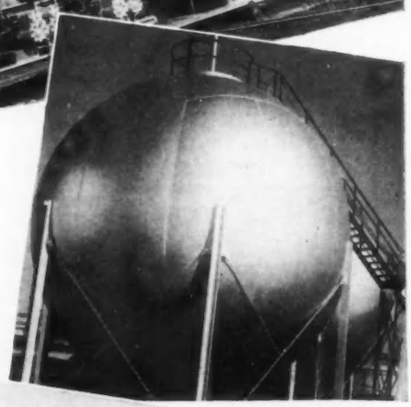
REGISTERED U. S. PAT. OFF.

APPROVED PROTECTIVE INSURANCE



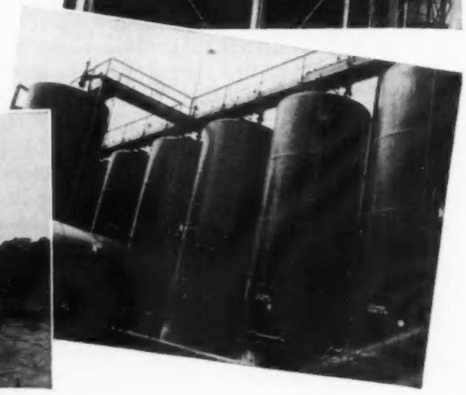






Rust-Ban, the most complete line of rust preventives on the market, protects equipment of all kinds against practically every type of corrosive condition. And the protective insurance offered by Rust-Ban meets with the hearty approval of equipment owners, plant superintendents and maintenance men alike. For corrosion insurance on your equipment write your nearest Rust-Ban marketer for complete information.

RUST-BAN is sold: In New York and New England by *Colonial Beacon Oil Co.*, New York City • In Pennsylvania by *Standard Oil Co. of Pennsylvania*, Philadelphia, Pa. • In New Jersey, Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina and South Carolina by *Standard Oil Company of New Jersey*, New York City • In Arkansas, Louisiana, Tennessee by *Standard Oil Company of Louisiana*, New Orleans, La. • In Texas by *Humble Oil & Refining Company*, Houston, Texas • In Oklahoma and Kansas and parts of Missouri by *The Carter Oil Company*, Tulsa, Oklahoma • In Kentucky, Georgia, Florida, Alabama and Mississippi by *Standard Oil Company (Ky.)*, Louisville, Kentucky • In other states by *Penola Inc.*, Pittsburgh, Pa. • In Canada by *Imperial Oil Ltd.*, Toronto, Canada.



Washington Roundup

Aviation gasoline supply is major worry of OPC as statistics show shortage in first half of 1942 . . . Status of tankers depends on "battle of Atlantic" . . . Pipe line company pushes proposal for link between Texas and Georgia

By B. F. LINZ, Washington Correspondent

AVIATION gasoline production replaced the East Coast shortage this week as the major subject of concern to the OPC as statistical studies showed the output during the first half of next year will run 39,000 barrels under the needed 120,000 barrels a day.

With the utmost effort, the coordinator's office figured, current capacity will barely be doubled by the end of the year. The appropriate sub-committees in the several districts have been turned loose on the problem, admitted in all quarters to be one of the most serious phases of the whole oil problem.

Meanwhile, although oil officials hope that the East Coast shortage is permanently a thing of the past, OPC officials warned that the sinking of British tankers might necessitate reassignment to the British shuttle service of some of the vessels now being turned back to the United States, and indicated that supplies of the Atlantic states depended upon British success in the "battle of the Atlantic."

Taking advantage of the setback given the projected Texas-New York pipe line by the return of the tankers, the Trans-American Pipeline Corporation is pushing its proposal for a crude line from Wichita Falls, Texas, to Savannah, Georgia, and Charleston, South Carolina. Announcing that it had received the blessing of the OPC, TAPCO asked Deputy Coordinator Davies to take the steps necessary to secure a priority rating for the steel required and the issuance by the President of a proclamation under the Cole Act, giving it the right to condemn land for its right of way.

Tax problems also moved front and center during the week as the Internal Revenue Bureau, acting on a protest by the Independent Petroleum Association, halted application of new rules on the deduction of intangible expenses in connection with contract-drilled wells pending a hearing November 3.

Aviation Gasoline

With the Atlantic Coast shortage—for some weeks its major concern—out of the way, the coordinator's office last week geared itself to an all-out effort to increase aviation gasoline production, outlining a program of activities to be prosecuted by the aviation gasoline subcommittees in the five districts.

Pointing out that estimates were submitted last month indicating that a deficiency of 39,000 barrels a day would be experienced in 100-octane aviation fuel through the first six months of next year, Wright W. Gary, director of refining, wrote the subcommittee chairmen October 27, requesting "immediate action" on a variety of problems.

Gary outlined six studies which the coordinator's office is anxious to have made without delay, as follows:

1. Prepare and submit a tabulation setting forth the quantity and quality of base stocks now used in the manufacture of 100-octane and other grades of aviation gasoline.

2. Make a survey of potential production of base stocks of high octane number which are not now used in aviation gasoline but for which facilities exist to manufacture them to specifications, including a statement of future commitments made for such stocks.

3. Submit a tabulation of the outside iso-butane requirements for all proposed plants set forth in recent committee reports and contact individual companies for information on commitments for such iso-butane so as to eliminate duplication of raw materials source.

4. Survey and furnish a tabulation showing present iso-pentane segregation, where the material is now used, and the present and future commitments for and availability of the material.

5. Investigate all existing hydrogenation capacity available and report on present use of this capacity, the potential capacity if it all could be used for codimer hydrogenation, and the actual availability of hydrogenation capacity not now in use, with particular attention to the defense importance of present hydrogenation operation.

6. Investigate and report on a suggestion that high-octane base stocks can be obtained for District No. 2 by large shipments out of District No. 3, and that excess high-octane base stocks available in District No. 1 can be utilized by shipment of blending agent from the Gulf Coast.

Shortage

Release of 40 of the tankers diverted to the British shuttle service may not solve the problem of the East Coast shortage because of the possibility that they may have to be returned at any moment if the "battle of the Atlantic" goes against England, according to Allen H. Hand, assistant director of transportation in the coordinator's office.

Hand disclosed that not all of the returned tankers will resume

operation in the Gulf-Atlantic service, telling a conference of tank truck operators in New York October 28 that some will have to be used for hauling molasses needed for the production of ethyl alcohol and others may have to be put in South American service.

Because of these uncertainties and the increasing demand for gasoline and oil for both civilian and defense needs, he urged the truck operators to continue their efforts to increase transportation facilities in cooperation with the coordinator's office.

"Our problem is by no means solved," the transportation official said. "In the first place, release of the 40 British tankers will be provisional. If the British petroleum situation changes materially, so as to require renewed tanker aid, the returned ships may have to be reassigned to the shuttle service."

Some of the vessels already have been returned to United States runs, he said, but, he added, "we do not know what adverse factors may develop to change this pleasing and gratifying picture to one where more aid will be required by the transfer again of additional ships to the shuttle service. We do not want to be fatalists, but we must be prepared.

"It is the view of the coordinator's office that every available means of transportation, including truck transport units, should continue to be used, even at higher cost, until the Atlantic Coast no longer presents any kind of a petroleum problem; furthermore, that every available means of transportation should continue to be used to keep our tanks full, in event of any unforeseen emergency that might develop," he declared.

"The great fact that we all must face today is that we must lay our plans against an unknown future."

In Washington it was announced October 29 that 12 of the tankers have completed their final voyages in the British service and are available for return to United States operations.

It was disclosed that this group consisted of the F. E. Powell, owned by the Atlantic Refining Company; the Sun, of the Sun Oil Company; Gulfpenn, of the Gulf Oil Corporation; E. M. Clark, Standard of New Jersey; Trimountain, Bernuth Lembcke Shipping Company; David McKelvy, Tide Water Associated Oil Company; Texas, Texas Company; Gasgoyle, Socony-Vacuum; Pan New York, Pan-American Petroleum & Transport Company, and La Placentia, Union Oil Compayn, all to be released at New York; E. V. R. Thayer, Sinclair Refining Company, to be released at Providence, R. I., and C. O. Swain, Standard of New Jersey, to be released at Galveston.

The weekly report of the Bureau of Mines showed that East Coast stocks increased by 215,000 barrels during the week ended October 25, and on that date were 482,000 barrels above stocks on October 26, 1940.

While crude oil and gasoline inventories declined 364,000 and 12,000 barrels, respectively, during the week, it was stated, those of light heating and heavy fuel oils increased, the former by 559,000 and the latter by 32,000 barrels.

Stocks on October 25 totaled 64,142,000 barrels, it was reported. Crude stocks were 12,917,000 barrels, 819,000 barrels under the 1940 figure, and heavy fuel oil stocks were 10,907,000 barrels, down 2,063,000 barrels, but gasoline on hand totaled 19,547,000 barrels, an increase of 589,000 barrels, and light heating oils were 20,771,000 barrels, an increase of 2,775,000 barrels.

Pipe Line

Approval of Deputy Coordinator Davies for the proposed crude pipe line from Wichita Falls, Texas, to Savannah, Georgia, was claimed this week by the Trans-American Pipeline Corporation, whose officials expressed the expectation that the coordinator's office will recommend to the OPM that the line be given necessary priorities for steel and to the President that a proclamation be issued giving it the right of condemnation under the Cole Pipe Line Act.

TAPCO, which has the backing of the International Association of Machinists, one of the oldest and wealthiest groups in the American Federation of Labor, also claimed its project has been given the support of Army and Navy officials.

If approved by the OPM, it was said, a priority would be required for only 85,000 tons of steel, and the company is ready to go ahead with its construction immediately.

In a letter to Davies, Aldace F. Walker, executive vice president of the pipe line company, disclosed that it is planned to run a branch of the line from Savannah to Charleston, S. C. Both terminal and underground storage will be provided at the eastern termini, the former to cost $500,000 and the latter $1,500,000 which will provide for 3,000,000 barrels underground storage.

As a common carrier, the company, Walker explained, will not be able to provide refining facilities, but negotiations are going on with oil companies for the building of plants which, he pointed out, would be in line with Navy Department views that the decentralization of refining facilities along the Atlantic Coast would be a prudent policy in view of the growing threat of direct attack and sabotage.

The $20,000,000 project would consist of a 12-inch line capable of delivering 70,000 barrels of crude daily. Part of the money will be supplied by the machinists' union, which is in the company on a "50-50" basis. The remainder of the cost would be raised in the market and through a government loan, if the line is constructed with RFC help. If the Defense Plant Corporation, a RFC subsidiary, assists, the line would be built as a government-owned project.

Tax Troubles

A sharp protest by the Independent Petroleum Association, backed up by contentions of drilling companies and small independent producers that they would be forced out of business, last week halted the application of new instructions sent out to field agents by the Internal Revenue Bureau with respect to deductions for intangible expenses involved in drilling operations.

A full hearing on the subject has been ordered by the bureau's general counsel for November 3, at which representatives of the IPA and the American Association of Oilwell Drilling Contractors will protest the proposed changes.

The controversy between the industry and the bureau was precipitated by confidential instructions sent out by the latter to the effect that the various intangible costs involved in well drilling cannot be deducted if the well had been drilled under contract by a drilling company, on the ground that such expenses—for labor, fuel, trucking, etc.—were not paid by the oil company but by the drilling company.

The two protesting associations

fought the order on the ground that it would wipe out the drilling contractors and would seriously affect small oil companies because, if they could not deduct such expenses, it would destroy the benefit from completion.

It was explained that the large oil companies could re-constitute the drilling departments which many formerly operated and thus protect themselves; the smaller companies, which could not afford such organizations, could hardly return to the old system of hiring a drilling man with some tools because techniques have so radically changed.

As a result of the representations, the bureau has suspended its instructions until the problem has been threshed out.

Meanwhile, of possibly equal benefit to the industry, the bureau has withdrawn its regulations that the cost of maintaining geological and land departments, including salaries of officers and employes engaged in similar activities, be allocated to producing properties as part of the overhead expense applicable to the general business of producing oil or gas, and is expected shortly to issue a new ruling that such expenses shall be applied to the individual properties with respect to which they were incurred.

Bureau officials, it was explained, recognized the impropriety of charging to producing properties in one state expenses involved with respect to other properties in other states.

OPC Appointments

Further appointments to the technical staff of the OPC were announced this week by the coordinator's office, as follows:

Willis Crane, formerly transportation lawyer in the Department of Agriculture, as transportation analyst.

George Gibson, formerly with Hancock Oil Company, Long Beach, California, as refining materials engineer.

James H. Hall, formerly with The Texas Company of Mexico, as assistant to the director of conservation.

Herbert J. Hofmann, formerly with Standard Oil Company of New Jersey at Aruba, as assistant petroleum analyst.

Edward H. Lynch, formerly assistant general manager in charge of distribution with Gulf Oil Corporation, Pittsburgh, as associate director of the transportation division.

Robert W. Olinger, formerly engaged in oil and mining in Mexico and Brazil, as an economic analyst.

Paul M. Raigorodsky, formerly vice president and general manager of the Aldon Gasoline Company, Tulsa, as assistant director of production in charge of the natural gas section.

Clyde Thomas, former Assistant United States Attorney for the Southern District of California, as senior attorney.

Joseph Winterberger, formerly associated with W. M. McEldowney, Pittsburgh, as chief supply technician.

Justin R. Wolf, formerly Federal Power Commission attorney, as senior attorney.

John B. Murrell, formerly division production engineer for Shell Oil Company at Houston, conservation engineer in the District No. 3 field office.

Everett G. Trostel, formerly petroleum engineer for the Union Oil Company of California at Los Angeles, as conservation engineer in the District No. 5 field office.

Gulf Shipments . . .

Tanker and barge shipments of oil from Texas and Louisiana in September totaled 40,457,566 barrels, of which 32,173,620 barrels were shipped from Texas and 8,283,946 barrels from Louisiana, it was reported during the week by the petroleum conservation division of the Interior Department.

The division's monthly survey showed 28,425,302 barrels of crude and products shipped by tanker from Texas to the Atlantic Coast, including 8,550,997 barrels of crude, 5,067,057 barrels of fuel oil, 3,370,405 barrels of gas oil, 9,071,772 barrels of gasoline, 497,897 barrels of lubricating oil, 1,839,766 barrels of kerosine and 27,408 barrels of miscellaneous products.

Shipments from Texas to Gulf Coast ports totaled 276,024 barrels (196,507 barrels of fuel oil and 79,517 barrels of gasoline), 736,667 barrels to Atlantic foreign ports (248,407 barrels of crude, 165,517 barrels of fuel oil, 71,107 barrels of gas oil, 228,382 barrels of gasoline, 7,861 barrels of lubricating oil and 15,393 barrels of kerosine), and 196,901 barrels to U. S. territories (60,565 barrels of fuel oil, 51,458 barrels of gas oil, 66,055 barrels of gasoline and 18,823 barrels of kerosine).

Barge shipments to Atlantic Coast ports were 564,154 barrels (of which 1,011 barrels was fuel oil, 37,417 barrels gas oil, 462,250 barrels gasoline, 3,627 barrels lubricating oil and 59,849 barrels kerosine); 1,563,785 barrels to Gulf Coast ports (including 97,409 barrels of crude, 29,010 barrels of fuel oil, 33,774 barrels of gas oil, 1,345,481 barrels of gasoline, 7,628 barrels of lubricating oil and 50,483 barrels of kerosine) and 410,787 barrels to Mississippi ports (including 406,757 barrels of gasoline and 4,030 barrels of kerosine).

Louisiana tanker shipments included 3,392,565 barrels to the Atlantic Coast (consisting of 1,916,138 barrels of crude, 354,112 of fuel oil, 222,159 of gas oil, 133,266 of gasoline, 88,879 of lubricating oil, 654,875 of kerosine and 23,136 of miscellaneous products); 540,069 barrels to Gulf Coast ports, all crude, and 107,996 barrels to Atlantic foreign ports (96,270 barrels of crude, 11,015 of gasoline and 711 of lubricating oil).

The barge movement consisted of 127,243 barrels to the Atlantic Coast (composed of 3,827 barrels of gas oil, 105,150 of gasoline, 5,798 of kerosine and 12,468 of miscellaneous products, all to South Atlantic ports); 2,915,813 barrels to Gulf Coast ports (2,603,458 barrels of crude, 24,114 barrels of fuel oil, 37,171 barrels of gas oil, 212,381 barrels of gasoline, 19,780 barrels of lubricating oil, 5,624 barrels of kerosine and 13,285 barrels of miscellaneous products; and 1,200,260 barrels to Mississippi ports (consisting of 28,158 barrels of fuel oil, 87,303 barrels of gas oil, 1,028,982 barrels of gasoline, 2,242 barrels of lubricating oil and 53,575 barrels of kerosine).

Condensate Conservation

Certain features of the Arkansas oil and gas conservation law were cited this week as examples which might be followed by other states in carrying out the recommendation made last month by Coordinator Ickes for conservation of condensate pools through judicious drilling and production.

The suggestion was made by Deputy Coordinator Davies in a letter to Alex M. Crowell, direc-

tor of the Arkansas Oil and Gas Commission, acknowledging receipt of a copy of the law and an explanation of how it was being administered.

"It is doubtful that anyone would care to claim that the Arkansas law or its administration is perfect," Davies said. "However, constructive progress unquestionably has been made. It would behoove many other oil and gas producing states to look to Arkansas for guidance in the formulation or improvement of their conservation laws and administrative procedure in the application of such laws for the regulation of oil and gas development and production operations."

The especially noteworthy features of the statute, Davies said, are "(a) the distinct progress realized in the elimination of unnecessary drilling accomplished by the establishment of uniform drilling units, by provision for enforced integration of small and irregular tracts into a single drilling unit, and through sound allocation of production; (b) the progress made in the proper regulation of the total rate of production of fields to within the range of efficient sustained production rates for the particular fields; (c) the allocation of the total production allowed the pool among the various properties and wells on a reasonable and equitable basis designed to prevent reasonably avoidable drainage between units or tracts, and (d) the complete rejection of the individual well or some expression of its potential as the unit of allocation or as the sole or major factor in the allocation of production among tracts."

Organizer

Edwin S. Smith, former member of the National Labor Relations Board whose re-appointment was successfully opposed last August by the American Federation of Labor, which charged that his decisions as a board member had consistently favored the CIO, was named by the latter organization October 27 to direct an organizing campaign among the nation's 500,000 oil workers.

Standard Oil Company's 65,000 workers will be the first target of the drive, for which the CIO and the Oil Workers International Union will set up a $200,000 war chest.

A joint statement by CIO President Phillip Murray and O. A. Knight, president of the union, said that the oil industry is "the last of the basic mass production industries that still remains substantially unorganized."

Prices

Frank Buttram, president of the Independent Petroleum Association, has submitted to Coordinator Ickes and Price Administrator Leon Henderson the results of a cost survey to support the contentions of Frank Phillips that an increase of 25 cents per barrel in the price of Mid-Continent crude is justified.

Phillips' application for approval of the proposed price increase has been pending before the Price Administration since July 15, its application suspended at the request of Henderson that no action be taken pending a study of the justification for higher prices.

Buttram asked the two officials to give prompt consideration to the matter on the ground that if increased production is desired it will be necessary to insure producers at least their costs.

The matter was one considered at the recent convention of the IPA, and resolutions adopted by that organization at the time also were submitted to the coordinator and price administrator.

Investigation

With the East Coast shortage overcome, the special Senate committee which has been investigating the situation decided to bring its study to a close, and at a meeting called by Chairman Francis J. Maloney October 27 agreed to prepare and submit a final report to the Senate and disband.

The committee made an intensive study of the situation in September and early October, with hearings at which Coordinator Ickes and Deputy Coordinator Davies were questioned exhaustively. Members of the committee went deeply into the possibilities of using railroad tank cars to bring oil into the affected area, creating a controversy between J. J. Pelley, president of the Association of American Railroads, and the coordinator as to whether there actually were 20,000 tank cars available, as claimed by the former.

Ickes insisted there were but slightly more than 5000 cars available, but by the end of October was issuing reports that approximately 5000 cars a week were arriving at East Coast destinations.

In a preliminary report submitted to the Senate in September, the Maloney committee charged that the shortage was one of stocks rather than of supply and had been over-dramatized by the coordinator's office.

Hemisphere Oil

There is plenty of oil for all Western Hemisphere countries, Sumner Welles, undersecretary of state, told the Inter-American Financial and Advisory Committee October 30.

Welles said the Hemisphere oil problem has been solved and "The current requirement of each country in this hemisphere can be met 100 percent, and very soon reserve inventories will begin to build up."

Fears of an oil shortage became general throughout Latin America following the transfer of American tankers to the British last spring, and it was announced at one time by Coordinator Ickes that the South American countries would be put on "quotas" which would insure that they received as large a proportion of their normal requirements as the eastern states where curtailment was in effect.

Miscellaneous

Arthur M. Stephens, formerly traffic manager and director of Standard Oil Company of Kentucky, Louisville, was named by the Board of Investigation and Research, October 29, as director of research into the economy and fitness of rail, motor and water carriers.

The Board of Investigation and Research was set up under the Transportation Act of 1940 to study the relative efficiencies of the several transportation mediums.

Expansion of the price division of the Office of Price Administration to handle the increasing complex price problem has involved the creation of a construction, petroleum production and mining equipment unit, to be headed by C. Lawrence Christenson, economist on leave of absence from Indiana University.

Seven Prominent Speakers Before A. P. I. General Session

A COMPREHENSIVE study of economic, legislative, national defense, war requirements, and other factors affecting the industry are to be among the many features arranged for the Twenty-Second Annual Meeting of the American Petroleum Institute, being held this week in San Francisco.

These subjects will be discussed by seven prominent speakers that will appear at two general sessions of the Institute, which probably constitutes the greatest array of "timely" speakers ever assembled before the industry in a two-day period. Since this is the first meeting of the trade association following the appointment of a federal petroleum coordinator, it is fitting that two of the speakers should be from the Office of the Petroleum Coordinator. Their remarks naturally will deal considerably with national defense as well as oil, but in addition a member of the U. S. Congress, a representative of the U. S. War Department, and a member of the Great Britain Parliament will speak on defense and war affairs.

The other two speakers are trade association representatives, one from the furniture industry who has made a reputation for himself as a student of government, and the other being the American Petroleum Institute's current ranking official.

Besides the two general sessions, which will be held November 5 and 6, the Institute's program calls for 11 group sessions, and something like 75 committee meetings. All day Monday will be devoted entirely to committee meetings, which also will continue to convene throughout the week. Group sessions on fire protection and automotive transportation will be held Tuesday. Group sessions for the Division of Production and Division of Refining are scheduled for Wednesday, Thursday and Friday, with the Division of Marketing holding its single session on Thursday morning at the St. Francis Hotel.

WILLIAM R. BOYD, JR., executive vice president of American Petroleum Institute, New York, and ranking official of the trade organization since the recent death of Axtell J. Byles, president, speaks Wednesday November 5. Born January 7, 1885, at Fairfield, Texas. Studied law under father's tutelage, and at 19 years of age, minority disabilities being removed by appropriate legal action, was admitted to Texas bar. Became secretary to Congressman Scott Field, resigned after two years to practice law at Teague, Texas. Elected first mayor of Teague while 21 years of age. Organized and served as president of bank at Eddy, Texas. Took active part in enactment of reform banking legislation and for U. S. membership in League of Nations. Joined staff of the A. P. I. in 1920, shortly after its formation. Elected executive vice president in 1928.

HAROLD L. ICKES, United States Secretary of the Interior and Petroleum Coordinator for National Defense, speaks Wednesday, November 5. Born March 15, 1874, on farm in Franklin Township, Pennsylvania. Educated in the schools of Chicago, graduating from Chicago University in 1897. After several years in newspaper work, he returned to Chicago University to study law, and was graduated in 1907. Entered politics by managing campaigns for candidates for public office. Was appointed Secretary of Interior on March 4, 1933, and on May 28, 1941, was appointed Petroleum Coordinator for National Defense, which he conducts along with work of Secretary of Interior.

T. D. GALBRAITH, British Supply Council, Washington, D. C., speaks Thursday, November 6. Born at Glasgow, Scotland, in 1891. Entered Royal Navy in 1903, serving during duration of World War I. Retired from Royal Navy in 1922, with rank of commander, entered business, becoming member of Institute of Chartered Accountants of Scotland in 1925. Elected member of Glasgow Corporation, 1934; magistrate of City of Glasgow in 1938; member of Parliament in 1940. Commander Galbraith returned to Royal Navy at commencement of World War II, serving on staff of Commander in Chief, Coast of Scotland, until August, 1940, when appointed Admiralty Liaison Officer, British Purchasing Commission at New York.

RALPH K. DAVIES, Deputy Petroleum Coordinator for National Defense, speaks Thursday, November 6. Went to work for Standard Oil Company of California at Fresno in 1912. Later at San Francisco, he did clerical and sales work for the company. In 1928, went to London for reorganization work with Anglo-American Oil Company. Returned in 1929 and was elected vice president of International Bitumen Emulsions Corporation, subsidiary of Standard of California. Two years later was elected director of Standard Oil Company of California and executive vice president of Standard Stations, Inc. In 1935 was elected vice president of parent company, a position he held until appointed deputy petroleum coordinator in June.

WALTER B. PYRON, a brigadier general in the U. S. Army currently serving as special assistant to the undersecretary of war, and in civilian life a vice president of Gulf Oil Corporation, will address the assembly on Thursday, November 6. First connection with oil was 1907 in clerical capacity for J. M. Guffey Petroleum Company, forerunner of Gulf organization. Rose to head firm's North Louisiana operations, during which time was named vice president. Transferred to Fort Worth in charge of North Texas operations in 1918. Moved to Houston in 1924 as assistant head of operations. Headed Gulf's Pacific Coast operations for a time, and in 1935 returned to Houston as vice president in charge of Gulf's southwestern district. Active in National Guard activities, he was among those first called to service during current emergency.

WILLIAM P. COLE, JR., for a number of years a member of the U. S. House from Maryland, speaks at the Wednesday, November 5, general session. He has taken a prominent part in all congressional legislation affecting the petroleum industry for the past 10 years. In 1934 he served as chairman of a committee (Cole investigating Committee) that investigated oil operations, and in 1940 headed a similar investigating group. He is author of the so-called Cole Pipe Line Bill, passed a few months ago and which gives the industry the privilege of using condemnation proceedings in obtaining right-of-ways for construction of pipe lines considered vital to national defense. While he introduced the Cole Oil Control Bill, he did so at the request of President Roosevelt and has never made a fight for its passage.

ALFRED P. HAAKE, of National Association of Furniture Manufacturers, Chicago, speaks Thursday, November 6. Years of writing, lecturing and study in fields of industrial economics and labor relations have won him title of "Apostle of Common Sense." Varied business career began before he was out of high school, as grocery clerk, newsboy, machinist's helper, furniture truck boy. Subsequently, became associated with glassware house, city assessment clerk and license cashier, student in Kent College of Law, and student at University of Wisconsin. Later was pastor student in Wisconsin churches, member of University of Wisconsin faculty, head of economics department at Rutgers University, and director of industrial economics for a Detroit advertising agency. Aided in establishing furniture associations and credit bureaus.

Petroleum Industry Aided
By 25 Years of "Oil Weekly" Service

Pioneering in the development of the great Southwest, the OIL WEEKLY is to be congratulated on its consistent and reliable reportorial services it has rendered the petroleum industry. When any business reaches the quarter-century milestone of service, the achievement itself is evidence of vision and progressiveness. Nevertheless, the Lion Oil Refining Company takes this opportunity to express its sincere congratulations and hopes for continued success of the OIL WEEKLY in the years ahead.

LION OIL REFINING COMPANY

El Dorado, Ark. T. H. Barton, President

W. B. OMOHUNDRO

DRILLING » PRODUCING

Gas, Gasoline, Diesel, Steam

Rotary and Cable Tool Drilling

City National Bank Building

WICHITA FALLS, TEXAS

A. P. I. Division of Production Program Has 16 Papers

FOUR group sessions will be held by the Institute's Division of Production during the annual meeting. One session will take place on Wednesday, two on Thursday, and the other on Friday. A total of 16 papers on many important subjects will be presented. One session will be devoted to production practice, another to drilling practice and materials, one to corrosion of gasoline pipe lines, and the other to production technology. All Division of Production group meetings will be held in the Palace Hotel, where the division's headquarters have been established.

I. W. ALCORN

PAUL D. TORREY

W. S. CRAKE

J. U. TEAGUE

ROBT. F. CORY

D. R. KNOWLTON

H. T. KENNEDY

H. E. DRALLE

E. H. LAMBERGER

H. G. TEXTER

Wednesday, November 5, 1941

9:00 A.M.

PRODUCTION PRACTICE

(Palace—Gold Ball Room)

(Sponsored by the Central Committee on Drilling and Production Practice)
Presiding: Paul D. Torrey, The Sloan and Zook Co., Houston, Texas

Reduction of Hole Size in Drilling as Affecting Costs, Completion, and Production Practice.
I. W. Alcorn, The Pure Oil Co., Houston, Texas; and
J. U. Teague, Hogg Oil Co., Houston, Texas.

A Review of Multiple-Zone Production in California.
Robert F. Cory, The Texas Co., Long Beach, Calif.

Closer Association between the Production Engineer and his Operating Co-Worker.
D. R. Knowlton, Phillips Petroleum Co., Bartlesville, Okla.

The Control of Gas-Oil and Water-Oil Ratios by Chemical Treatment.
Harvey T. Kennedy, Gulf Research and Development Co., Pittsburgh, Pa.

Thursday, November 6, 1941

9:00 A.M.

DRILLING PRACTICE AND MATERIALS

(Palace—Gold Ball Room)

(Sponsored by the Central Committee on Drilling and Production Practice)
Presiding: W. S. Crake, Shell Oil Co., Inc., Houston, Texas

A Practical Evaluation of Cements for Oil Wells.
R. Floyd Farris, Stanolind Oil and Gas Co., Tulsa, Okla.

Leak Resistance of Casing Joints in Tension.
P. D. Thomas and A. W. Bartok, Jones and Laughlin Steel Corp., Aliquippa, Pa.

Oil-Well Tests Suggest New Rating Standards.
H. E. Dralle and E. H. Lamberger, Westinghouse Electric and Manufacturing Co., East Pittsburgh, Pa.

Causes and Prevention of Drill-Pipe and Tool-Joint Troubles.
R. S. Grant, Hughes Tool Co., Houston, Texas; and
H. G. Texter, Spang Chalfant, Inc., Tulsa, Okla.

[*Continued on next page*]

A. P. I. Division of Production Program *(Continued)*

J. M. PEARSON

A. H. RINEY

R. D. WYCKOFF

W. A. SCHULZE

L. C. MORRIS

Thursday, November 6, 1941

9:30 A.M.

CORROSION OF GASOLINE PIPE LINES

(Palace—Concert Room)

(Sponsored by the Topical Committee on Pipe-Line Technology of the Central Committee on Pipe-Line Transportation)
Presiding: A. H. Riney, Phillips Petroleum Co., Bartlesville, Okla.

The Amount and the Measurement of Internal Corrosion in Gasoline Pipe Lines.
J. M. Pearson, Susquehanna Pipe Line Co., Philadelphia, Pa.

A Review of Methods Used to Reduce Internal Corrosion of Gasoline Pipe Lines.
W. A. Schulze, L. C. Morris, and R. C. Alden, Phillips Petroleum Co., Bartlesville, Okla.

Experiences with and the Effect of the Use of Scrapers on Internal Corrosion of Gasoline Pipe Lines.
D. E. Sullivan, The Pure Oil Co., Chicago, Ill.

The Effect of Internal Corrosion on the Capacity of Gasoline Pipe Lines.
Speaker to be announced.

R. C. ALDEN

D. E. SULLIVAN

B. H. SAGE

Friday, November 7, 1941

9:00 A.M.

PRODUCTION TECHNOLOGY

(Palace—Gold Ball Room)

(Sponsored by the Central Committee on Drilling and Production Practice)
Presiding: R. D. Wyckoff, Gulf Research and Development Co., Pittsburgh, Pa.

The Prediction of the Properties of Hydrocarbons at Elevated Pressures.
B. H. Sage and W. N. Lacey, California Institute of Technology, Pasadena, Calif.

Prediction of Volumetric and Phase Behavior of Naturally Occurring Hydrocarbon Systems.
C. R. Dodson and M. B. Standing, Standard Oil Co. of California, La Habra, Calif.

The Effect of Polar Impurities upon Capillary and Surface Phenomena in Petroleum Production.
F. C. Benner and F. E. Bartell, University of Michigan, Ann Arbor, Mich.

Drilling-Fluid Viscosimetry.
W. T. Cardwell, Jr., Standard Oil Co. of California, La Habra, Calif.

Report of Division's Nominating Committee.
F. S. Bryant, Standard Oil Co. of California, San Francisco, Calif., Chairman.

Election of Twenty Members of the General Committee of the Division of Production.

W. N. LACEY

C. R. DODSON

F. C. BENNER

F. E. BARTELL

Numerous Committee Meetings Important A. P. I. Function

ALTHOUGH receiving little publicity, the work of the various committees has always constituted some of the most important achievement of the American Petroleum Institute's Division of Production. The 22nd annual meeting certainly should prove no exception to the rule, for a large number of committee sessions are on the program. Other divisions of the Institute also hold committee meetings, but the Division of Production has the largest number of committees, membership approximating 2000. On this and the following pages appear pictures of many of the chairmen of the committees of the Division of Production that will meet during the annual convention at San Francisco.

Chairmen of Division of Production Committee Meetings

GEORGE A. HILL, JR., president of Houston Oil Company, Houston, is chairman of the General Committee of the Division of Production.

J. EDGAR PEW, vice president of Sun Oil Company, Philadelphia, is chairman of the Central Committee on Standardization of Oil Field Equipment.

W. S. FARISH, president of Standard Oil Company of New Jersey, New York, chairman of the National Committee on Safeguard Oil Storage.

D. T. RING, vice president of Preston Oil Company, Columbus, is acting chairman of the Central Committee on District Activities.

M. ALBERTSON, research engineer, Shell Oil Company, Houston, is chairman of the Executive Committee of the Central Committee on Drilling and Production Practice.

R. W. FRENCH, engineer, Continental Oil Company, Los Angeles, is chairman of the Topical Committee on Production Practice.

I. W. ALCORN, division engineer, The Pure Oil Company, Houston, is chairman of the Topical Committee on Drilling Practice.

PAUL D. TORREY, consulting engineer, Houston, is chairman of the Subcommittee on Secondary Recovery, and also chairman of Program Committee on Drilling and Production.

R. D. WYCKOFF, geophysicist, Gulf Research & Development Company, Pittsburgh, is chairman of the Topical Committee on Production Technology.

W. F. ROGERS, chemical engineer, Gulf Oil Corporation, Houston, is chairman of the Topical Committee on Pipe Line Technology.

HU M. HARRIS, drilling superintendent, Humble Oil & Refining Company, Houston, is chairman of the Engineers' Subcommittee on Rotary Drilling Equipment.

JOHN R. SUMAN, vice president of Humble Oil & Refining Company, Houston, is chairman of the Committee on Standardization of Oil Country Tubular Goods.

Chairmen of Division of Production Committee Meetings

[*Continued*]

HERBERT W. LADD, superintendent of materials for Stanolind Oil & Gas Company, Tulsa, is chairman of the Engineers' Subcommittee on Pipe, and Secretary of the Committee on Standardization of Oil Country Tubular Goods.

CHASE E. SUTTON, division manager, The Pure Oil Company, Houston, is chairman of the Committee on Standardization of Oil Feld Boilers.

T. E. SWIGART, president of Shell Pipe Line Corporation, Houston, is chairman of the Committee on Standard of Pumping Equipment and Engines.

J. JAY DUNN, assistant to vice president of National Tube Company, Pittsburgh, is chairman of the Pipe Manufacturers' Subcommittee.

E. S. DURWARD, equipment engineer, Shell Oil Company, Inc., Houston, is chairman of the Subcommittee on Production Valves.

C. H. KOUNZ, chairman of the board, Sinclair Prairie Pipe Line Company, is chairman of the Central Committee on Pipe Line Transportation.

H. W. FLETCHER, vice president and general manager of Hughes Tool Company, Houston, is chairman of the Correlating Committee on Gages and Gaging Practice.

E. G. GAYLORD, chief petroleum engineer, Standard Oil Company of California, San Francisco, is chairman of the Advisory Committee on Fundamental Research on Occurrence and Recovery of Petroleum.

B. B. COX, of Socony-Vacuum Oil Company, Inc., New York, is chairman of the Advisory Committee on Research Project No. 4: Origin and Environment of Source Sediments of Petroleum.

T. D. KNOWLES, boiler inspector for Union Oil Company of California, Santa Fe Springs, California, is chairman of the Engineers' Subcommittee on Boilers.

C. A. DUNLOP, engineer, Humble Oil & Refining Company, Houston, is chairman of the Engineers' Subcommittee on Derricks, and also chairman of the Committee on Standardization of Standard Rigs and Derricks.

BLAINE B. WESCOTT, Gulf Research and Development Company, is chairman of the Special Subcommittee on Performance Specification for Casing.

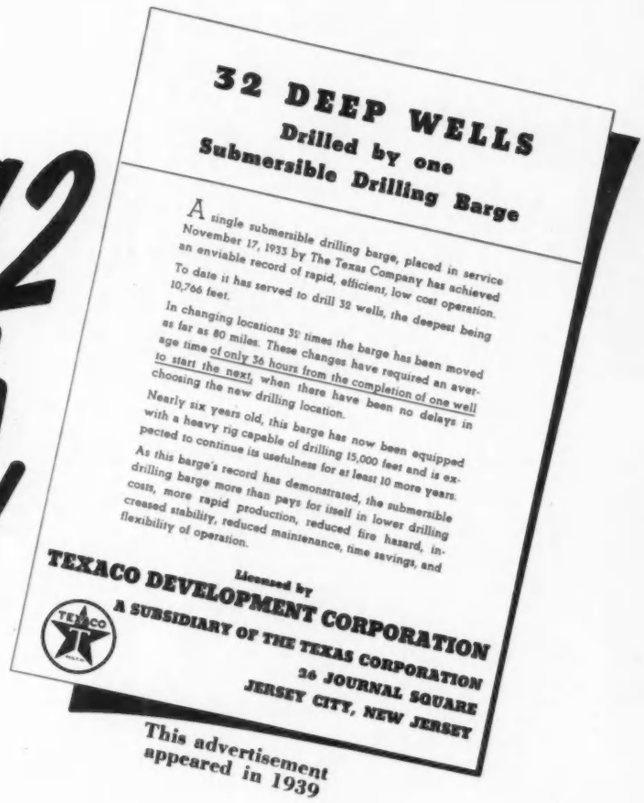
D. R. DALE, chief engineer, The S. M. Jones Company, Toledo, is chairman of the Sucker-Rod Manufacturers' Subcommittee.

L. A. OGDEN, division engineer, The Pure Oil Company, Fort Worth, Texas, is chairman of the Engineers' Subcommittee on Pumping Equipment and Engines.

GEORGE E. CANNON, engineer for Humble Oil & Refining Company, Houston, is chairman of the Subcommittee on Oil-Well Cements.

C. R. ATHY, vice president of International Derrick & Equipment Company, Columbus, Ohio, is chairman of the Steel-Derrick Manufacturers' Subcommittee.

It's 42 wells, now!



32 DEEP WELLS
Drilled by one
Submersible Drilling Barge

A single submersible drilling barge, placed in service November 17, 1933 by The Texas Company has achieved an enviable record of rapid, efficient, low cost operation. To date it has served to drill 32 wells, the deepest being 10,766 feet.

In changing locations 32 times the barge has been moved as far as 80 miles. These changes have required an average time of only 36 hours from the completion of one well to start the next, when there have been no delays in choosing the new drilling location.

Nearly six years old, this barge has now been equipped with a heavy rig capable of drilling 15,000 feet and is expected to continue its usefulness for at least 10 more years.

As this barge's record has demonstrated, the submersible drilling barge more than pays for itself in lower drilling costs, more rapid production, reduced fire hazard, increased stability, reduced maintenance, time savings, and flexibility of operation.

Licensed by
TEXACO DEVELOPMENT CORPORATION
A SUBSIDIARY OF THE TEXAS CORPORATION
26 JOURNAL SQUARE
JERSEY CITY, NEW JERSEY

This advertisement appeared in 1939

...Drilled by the same Submersible Drilling Barge

NOW 8 YEARS OLD, the submersible drilling barge referred to in the advertisement above is still going strong . . . adding to its enviable record of wells drilled and savings effected . . . still good for many years to come.

TEXACO DEVELOPMENT CORPORATION

A Subsidiary of The Texas Corporation

26 Journal Square • Jersey City, N. J.

Chairmen of Division of Production Committee Meetings

[*Continued*]

J. E. SHERBORNE, associate process engineer, Union Oil Company of California, Santa Fe Springs, Calif., is chairman of the Subcommittee on Core Analysis and Electrical Logging.

G. RAYMOND, chief engineer, Black, Sivalls & Bryson, Inc., Oklahoma City, is chairman of the Production-Tank Manufacturers' Subcommittee.

W. S. CRAKE, engineer, Shell Oil Company, Inc., Houston, will be acting chairman of the Subcommittee on Internal Combustion Engines and of a Special Subcommittee on Radiator-Type Cooling Units.

F. S. BRYANT, assistant to the president of Standard Oil Company of California, San Francisco, is chairman of the Nominating Committee of the Division of Production.

TURNER C. SMITH, General Petroleum Corporation of California, Los Angeles, is chairman of the Engineers' Subcommittee on Tanks.

GEORGE H. FANCHER, professor of petroleum engineering at University of Texas, Austin, is chairman of the sub-committee on Code 27; Permeability of Porous Media.

J. E. TOUSSAINT, general manager of operations, producing department, Standard Oil Company of California, San Francisco, is chairman of the Committee on Standardization of Wire Rope and Manila Cordage.

Fire Protection Group Session Scheduled

A group session on fire protection, sponsored by the Institute's committees on fire prevention, will be held Tuesday, November 4. C. E. Townsend, Sun Oil Company, Philadelphia, will preside. The program will consist of two addresses. H. J. Wilson, Tide Water Associated Oil Company, will discuss "Economics of Fire Protection." Max B. Anfenger and O. W. Johnson, Standard Oil Company of California, will collaborate in a paper on "Characteristics of Liquefied Petroleum Gas That Affect Its Fire Hazard."

Automotive Transportation Group Session Arranged

A group session on automotive transportation, with Leo Huff, The Pure Oil Company, Chicago, presiding, will be held November 4. S. H. Grinnell, Union Oil Company of California, will discuss "Oil Field Transportation and Especially Developed Equipment," while E. M. Fitz, Shell Oil Company, Inc., will speak on "Developments in Transportation of Flammable Liquids on the Pacific Coast," and Frederick C. Horner, General Motors Corp., will speak on "The Motor Truck in National Defense."

Institute to Elect New President; Other Officers

Election of a successor to the late Axtell J. Byles, who died September 28, as president of the American Petroleum Institute is among the agenda for the meeting of the Institute's Board of Directors to be held in connection with the petroleum trade association's 22nd Annual Meeting. The term of office of Mr. Byles, who was elected in May, 1933, and who since had been reelected annually, would have expired this year.

The board also will elect seven other officers of the Institute and eight members of its own body, while 47 other directors whose terms expire will be elected.

Twenty members of the respective general committees of the Institute's Divisions of Production, of Refining, and of Marketing also are to be elected at San Francisco.

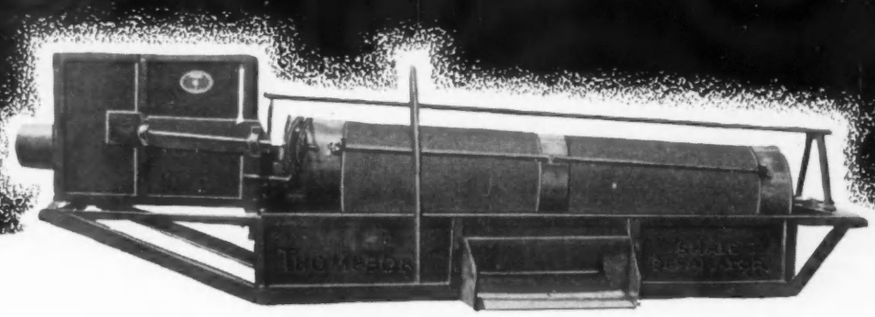
Second Petroleum Photographic Salon

The Second Petroleum-Industry Photographic Salon (Pictorial), sponsored jointly by the Institute and the Photographic Society of America, will be open to the public daily from November 1 to November 7 in the Concert Room of the Palace Hotel (first floor near Registration Desk).

Photographs portraying every phase of the operations of petroleum industry are exhibited, the pictures having been submitted by photographers from every section of the United States. The names of the photographers, many of them oil men, are listed in the salon catalog.

At the close of the Institute's annual meeting, the salon will have four public showings: November 10-16, Doheny Library, University of Southern California, Los Angeles, Calif.; November 22-December 15, Museum of Science and Industry, Chicago, Ill.; December 20-January 9, 1942, New York Museum of Science and Industry, New York; and January 11-February 1, 1942, Franklin Institute, Philadelphia, Pa.

BLAZED THE TRAIL TO BETTER SEPARATOR SERVICE

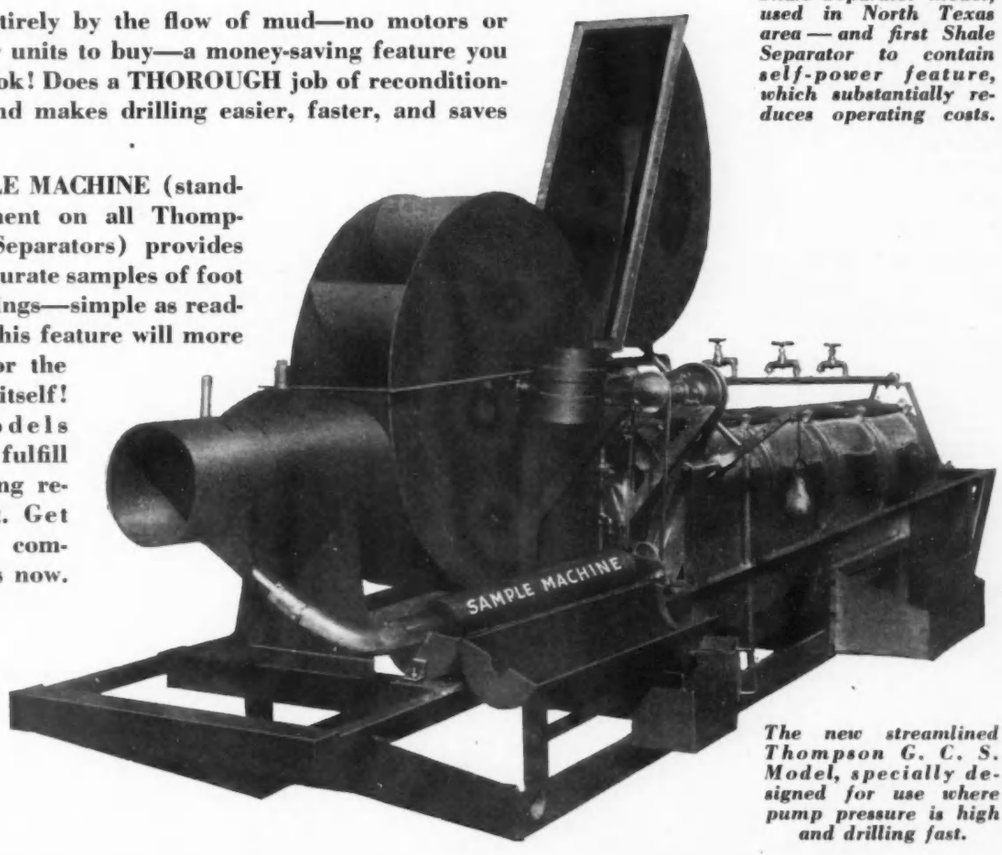


THOMPSON SHALE SEPARATOR AND SAMPLE MACHINE

Powered entirely by the flow of mud—no motors or other power units to buy—a money-saving feature you can't overlook! Does a THOROUGH job of reconditioning mud, and makes drilling easier, faster, and saves your bits.

The SAMPLE MACHINE (standard equipment on all Thompson Shale Separators) provides true and accurate samples of foot by foot cuttings—simple as reading a log. This feature will more than pay for the separator itself! Three models available to fulfill every drilling requirement. Get prices and complete details now.

Above: First Thompson Shale Separator model, used in North Texas area — and first Shale Separator to contain self-power feature, which substantially reduces operating costs.



The new streamlined Thompson G. C. S. Model, specially designed for use where pump pressure is high and drilling fast.

Manufactured by

THOMPSON TOOL CO., INC.

Sold Through Supply Stores Everywhere

Phone 3521

Iowa Park, Texas

Production and Runs High But in Line With Demand

Although cut back somewhat from the all-time highs of the week before, crude oil production and refinery runs continued well in line with prevailing record consumption of petroleum products during the week ended October 25, and substantial additions were made to stocks of gasoline and light fuel oil, although it was necessary to dip into storage for one half million barrels of residual fuel oil.

Favorable results were obtained again, meanwhile, in poviding oils for the East Coast, despite the fact that the district was back throughout the week on normal consumption, following the lifting of restrictions on deliveries to service stations.

Aggregate Stocks Expand

Aggregate Eastern stocks of the three major products, gasoline, light fuel oil, and residual fuel oil, were expanded 579,000 barrels during the week, in contrast with a reduction of exactly the same amount in the corresponding week last year. Thus there was an improvement of 1,158,000 barrels weekly or 165,000 barrels daily as compared with a year ago in the replenishing of Eastern inventories of the mentioned products.

The changes in East Coast stocks were as follows:

Product	Week Ended Oct. 26, 1940 (Barrels)	Week Ended Oct. 25, 1941 (Barrels)
Gasoline	—519,000	— 12,000
Gas Oil and Distillate	—448,000	+559,000
Residual Fuel Oil	+388,000	+ 32,000
Total, 3 Products	—579,000	+579,000

These figures showed especially good results in providing light fuel oil for Eastern heating purposes, better maintenance of gasoline stocks than a year ago, and some improvement of the inventory of residual fuel oil, although the addition was less than that in the corresponding week last year.

For the United States as a whole, crude production averaged 4,098,800 barrels daily in the week ended October 25, the American Petroleum Institute reported. That was about 12,000 barrels less than the all-time record output of the previous week, but 12.6 percent more than the production in the week ended October 26 last year. This 12.6 percent increase over a year ago is closely in line with the gain that has occurred in demand for petroleum products.

Crude runs to stills for the nation averaged 4,060,000 barrels daily in the week of October 25, down 60,000 from the week before but 15 percent above the daily average runs of 3,529,000 barrels in October of last year. As in the case of crude production, the plant operations therefore were well in line with increased consumption of oils.

Gasoline Added to Storage

Gasoline stocks throughout the nation went up from 82,584,000 to 83,343,000 barrels during the week ended October 25, and the latter quantity was 4.4 percent larger than that of 79,800,000 barrels in storage a year previously. On the East Coast, the inventory changed only insignificantly, as shown above, and the stocks of 19,547,000 barrels as of October 25 compared with 18,958,000 barrels on hand a year earlier. In the Appalachian district, storage is about the same as a year ago, and the same is true for South Louisiana, North Louisiana, and Arkansas. Illinois-Indiana-Kentucky stocks are about 1,600,000 barrels above a year ago at 15,283,000, and other gains include those of 1,000,000 barrels to 7,147,000 for Oklahoma-Kansas-Missouri, 700,000 barrels to 2,298,000 for Inland Texas, and 200,000 barrels to 1,006,000 for the Rocky Mountains. On the Texas Gulf Coast gasoline storage is 2,000,000 barrels smaller than a year ago at 11,055,000 barrels, and California shows an 800,000-barrel decrease to 14,538,000.

Trends of Operations and Changes in Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1939:						
April 22	3,526,700	3,280,000	277,156,000	[2]87,769,000	21,085,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	[7]108,409,000
May 6	3,580,900	3,275,000	[2]278,607,000	86,216,000	26,167,000	108,597,000
August 5	[3]3,909,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[1]1,690,800	3,475,000	246,982,000	73,475,000	37,722,000	116,237,000
October 7	3,435,850	3,505,000	231,564,000	[5]71,152,000	38,549,000	114,397,000
October 21	3,771,550	[3]3,650,000	[2]229,127,000	72,122,000	39,358,000	115,060,000
1940:						
January 27	3,611,600	3,470,000	237,339,000	87,914,000	27,407,000	103,015,000
February 24	3,732,100	3,490,000	240,836,000	96,719,000	25,390,000	103,419,000
March 30	3,841,250	3,585,000	250,561,000	101,370,000	23,778,000	105,081,000
April 20	3,858,550	3,535,000	254,881,000	[1]102,817,000	24,779,000	103,323,000
April 27	3,845,250	3,555,000	256,670,000	102,452,000	24,997,000	102,552,000
May 25	3,835,650	3,580,000	259,330,000	100,297,000	28,356,000	104,015,000
June 22	3,846,450	[3]3,690,000	260,891,000	97,276,000	32,751,000	104,683,000
June 29	3,639,550	3,625,000	262,059,000	95,142,000	33,590,000	104,486,000
July 27	3,690,400	3,555,000	262,579,000	90,173,000	38,981,000	105,924,000
August 31	3,501,350	3,575,000	265,865,000	85,393,000	44,766,000	108,774,000
September 28	3,799,950	3,600,000	263,609,000	82,273,000	47,986,000	108,450,000
October 26	3,640,300	3,565,000	262,746,000	80,891,000	[1]48,893,000	108,475,000
November 9	3,584,200	3,510,000	261,631,000	[6]79,847,000	48,408,000	107,687,000
November 30	3,335,050	3,510,000	262,679,000	80,284,000	46,212,000	106,618,000
December 28	3,385,500	3,585,000	261,552,000	83,274,000	42,266,000	102,620,000
1941:						
January 25	3,599,100	3,625,000	260,093,000	88,762,000	39,039,000	100,297,000
February 22	3,629,650	3,590,000	261,783,000	95,812,000	34,381,000	98,631,000
March 29	3,746,550	3,625,000	266,187,000	[2]99,727,000	29,949,000	96,152,000
April 26	3,726,850	3,675,000	266,149,000	96,647,000	29,543,000	94,732,000
May 31	3,786,100	3,699,000	262,356,000	93,845,000	33,524,000	92,757,000
June 28	3,847,250	3,930,000	259,399,000	91,461,000	35,732,000	92,896,000
July 12	3,870,750	4,090,000	255,567,000	89,561,000	37,812,000	92,699,000
August 2	3,695,250	3,845,000	252,535,000	86,779,000	41,433,000	94,800,000
August 30	4,004,700	4,070,000	249,413,000	81,672,000	45,351,000	95,052,000
September 27	4,060,000	3,980,000	246,649,000	81,003,000	49,950,000	95,251,000
October 4	3,860,750	4,015,000	246,144,000	80,870,000	49,553,000	96,016,000
October 11	4,070,950	4,075,000	243,571,000	81,381,000	51,289,000	95,527,000
October 18	[4]4,110,550	[4]4,120,000	243,605,000	82,584,000	52,403,000	95,800,000
October 25, 1941	4,098,800	4,060,000	.....	83,343,000	53,183,000	95,295,000
October 25, 1940	3,640,300	[8]3,529,000	[4]262,098,000	79,800,000	48,990,000	107,123,000
Change in past year.	+12.6%	+15.0%	—7.1%	+4.4%	+8.6%	—11.0%

[1] All time peak. [2] Peak for year. [3] Lowest since April, 1922. [4] Stocks, Oct. 19, 1940.
[5] Lowest since October, 1922, due to shut down of six Mid-Continent states. [6] Lowest for year.
[7] Prior to April 29, 1939, data did not include stocks at terminals, in transit, etc., except in California.
[8] October, 1940, daily average.

Light Fuel Oil

Gas oil and distillate fuel in storage in the United States October 25 aggregated 53,183,000 barrels, up nearly 800,000 barrels from a week earlier and 4,200,000 barrels or 8.6 percent above a year previously, when the total was 48,990,000 barrels. On the East Coast, stocks went up from 20,212,000 to 20,771,000 barrels within the week, and the new total was 2,800,000 barrels above that of 17,996,000 reported for a year previously. Appalachian stocks were increased from 606,000 to 663,000 barrels during the week, and the latter quantity compared with only 579,000 barrels for a year before. Indiana-Illinois-Kentucky stocks were increased 72,000 barrels to 5,934,000 and then stood 250,000 barrels higher than a year earlier. Oklahoma-Kansas-Missouri, South Louisiana, Rocky Mountains, and California similarly added to stocks during the week and then had on hand more than a year before, the increase for the year in California having been almost 2,300,000 barrels. Although Inland Texas and North-Louisiana-Arkansas made small withdrawals, they retained more than a year previously. On the Texas Gulf Coast, stocks of the light fuel oils were increased 22,000 barrels to 6,380,000, but the latter amount was 2,500,000 barrels less than the total of 8,828,000 held at the corresponding time last year.

Heavy Fuel Oil

Residual fuel oil stocks in the United States, although already comparatively light, were reduced about 500,000 barrels in the week of October 25, with the Texas Gulf Coast accounting for over half of the withdrawal (268,000 barrels) and California nearly one fourth (120,-

000 barrels), while small decreases were shown for the Appalachian district, Indiana-Illinois-Kentucky, Inland Texas, the Louisiana Gulf Coast, North-Louisiana-Arkansas, and the Rocky Mountains. Aside from the 32,000-barrel addition to stocks on the East Coast, the only increase was one of 58,000 barrels in Oklahoma-Kansas-Missouri. Following the week's reduction, the national inventory of heavy fuel oil stood at 95,295,000 barrels, and that quantity was 11,828,000 barrels, or 11 percent, smaller than the total in storage a year previously. However, California accounts for 11,623,000 barrels of the reduction, and all districts east of California in the aggregate have only 200,000 barrels less than at this time last year. In the latter region, nevertheless, situations vary materially by individual districts. East Coast stocks continue deficient, being 2,000,000 barrels smaller than a year ago at 10,907,000 barrels, and Appalachian inventories are at 400,000 barrels against 490,000 a year ago. Small decreases from a year ago are shown for Oklahoma-Kansas-Missouri, Inland Texas, North Louisiana-Arkansas, and the Rocky Mountains. On the other hand, Texas Gulf Coast stocks are about 450,000 barrels larger than a year ago at 8,947,000, and the Louisiana Gulf Coast shows a 200,000-barrel increase to 2,068,000, while there has been a build-up of 1,000,000 barrels to 4,641,000 in the Indiana-Illinois-Kentucky district.

Wholesale Prices of Refined Products in Principal Markets

	Range Last Week (Cents a Gal.)		Changes from Week Before	
REFINED GASOLINE				
Oklahoma Refineries:				
60 Octane and Under	5¼	5⅝	...	...
63-66 Octane	5⅝	6	...	...
72-74 Octane	6	6⅜	...	...
80-82 Octane, Ethyl	6¾	7¼	...	...
Mid-Western Tank Car:				
60 Octane and Under	5¼	5⅝	...	...
63-66 Octane	5⅝	6	...	...
72-74 Octane	6	6⅜	...	...
80-82 Octane, Ethyl	7⅜	7⅝	...	...
New York Harbor:				
68-70 Octane	8	8	...	...
72-74 Octane	8	8½	...	...
Min. 80 Octane, '39 Research	8½	9	...	...
Gulf Coast:				
60 Octane unleaded	5½	5¾	...	...
65 Octane unleaded	5¾	6	...	...
68 Octane unleaded	6¼	6½	...	...
70 Octane unleaded	6¼	6⅝	...	...
72-74 Octane leaded	6¼	6⅝	...	...
Min. 80 Octane, '39 Research	6¾	6¾	+¼	...
NATURAL GASOLINE				
Grade 26-70:				
F.O.B. Group 3	5⅛	5⅛	...	...
F.O.B. Br'kenr'ge, Tex.	4¾	4¾	...	...
KEROSENE				
Oklahoma Refineries:				
41-43 water white	4⅝	4¾	...	...
42-44 water white	4½	4⅞	...	...
Mid-Western Tank Car:				
41-43 water white	4⅝	4¾	...	...
42-44 water white	4½	4⅞	...	...
New York Harbor	5⅝	5¾	...	...
RANGE OIL				
At Oklahoma Refineries	4	4⅜	...	...
In Mid-Western Market Group 3, basis	4	4¼	...	...
LIGHT FUEL OILS				
Oklahoma Refineries:				
No. 1 straw	3½	4¼	...	...
No. 3	3½	3⅝	...	...
Mid-Western Tank Car:				
No. 1 white	3⅞	4⅛	...	...
No. 3	3½	3⅝	...	...
New York Harbor:				
No. 1	5⅜	5¾	...	...
No. 3	5¼	5¼	...	...

	Range Last Week (Per Bbl.)		Changes from Week Before	
HEAVY FUELS				
Oklahoma Refineries:				
No. 6	$0.80	$0.90	...	...
Mid-Western Tank Car:				
No. 5	.85	.85	...	...
No. 6	.85	.87½	...	...
New York Harbor:				
No. 5	1.65	1.75	...	...
No. 6	1.35	1.50	...	...
BUNKER C FUEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$0.85	$0.95	...	...
New York Harbor	1.35	1.50	...	...
DIESEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$1.65	$1.80	+.10	...
New York Harbor	2.15	2.15	...	...
LUBRICATING OIL (Cents a gal.)				
Oklahoma Refineries:				
Bright Stock, 150-160 viscosity at 210°, 10-25 pour test	22½	23	...	...
Neutral oil pale No. 3 Color, 150 viscosity at 100°, 0-10 pour test	14½	14½	...	...
Western Pennsylvania:				
Bright Stock, 145-155 viscosity at 210°, 25 pour test	25	27	...	—½
Neutral Oil No. 8 Color, 150 viscosity at 70°, 25 pour test	31	31	...	...

Kansas Leads in Decline of Crude Oil Production

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (October)	State Allowable (Barrels Daily in October)	BARRELS DAILY FOR WEEK ENDED Oct. 25	Nov. 1
TEXAS:				
Texas Panhandle	.....	.....	80,100	80,400
North Texas	.....	.....	104,950	105,800
West Central Texas	.....	.....	31,250	31,500
West Texas	.....	.....	283,550	286,200
East Central Texas	.....	.....	85,950	86,100
East Texas Field	.....	.....	368,600	370,000
South Texas	.....	.....	220,750	219,700
Texas Gulf Coast	.....	.....	296,600	292,300
Total Texas	1,420,100	1,433,957§	1,471,750	1,472,000
CALIFORNIA:				
Long Beach	.....	.....	37,600	37,800
Midway-Sunset	.....	.....	44,000	42,700
Kettleman Hills	.....	.....	39,700	37,700
Wilmington	.....	.....	86,400	86,800
Others	.....	.....	435,900	426,800
Total California	613,200	613,200*	643,600	631,800
OKLAHOMA:				
Oklahoma City	.....	.....	84,450	86,350
Seminole Area	.....	.....	112,650	114,600
Others	.....	.....	228,350	235,550
Total Oklahoma	481,500	428,000	425,450	436,500
ILLINOIS:				
Salem	.....	.....	77,200	77,250
Louden	.....	.....	62,650	61,300
Centralia	.....	.....	9,200	9,100
Other New Pools	.....	.....	261,100	259,450
Old Pools	.....	.....	12,250	12,150
Total Illinois	399,200	.....	422,400	419,250

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (October)	State Allowable (Barrels Daily in October)	BARRELS DAILY FOR WEEK ENDED Oct. 25	Nov. 1
LOUISIANA:				
North Louisana	.....	.....	80,350	81,200
South Louisiana	.....	.....	264,350	261,500
Total Louisiana	332,000	339,233	344,700	342,700
KANSAS	253,000	253,000	255,500	237,350
NEW MEXICO	114,600	114,600	117,400	116,500
EASTERN STATES:				
Pennsylvania Grade	73,800	.....	75,600	74,850
Others, Eastern	24,300	.....	18,500	18,500
Total Eastern States	98,100	.....	94,100	93,350
MOUNTAIN STATES:				
Wyoming	84,300	.....	86,500	86,350
Montana	20,300	.....	20,250	20,100
Colorado	5,000	.....	4,800	4,700
Total Mountain States	109,600	.....	111,550	111,150
MICHIGAN	44,100	50,000†	58,400	58,250
INDIANA	20,100	.....	18,900	19,200
ARKANSAS	78,200	73,415	72,600	72,150
MISSISSIPPI	43,900	.....	67,200	63,100
NEBRASKA	4,300	.....	6,100	6,400
‡Total 8 Prorated States	3,336,700	3,305,405	3,389,400	3,367,250
Total United States	4,012,000	.....	4,109,650	4,079,700

* Recommendation of Conservation Committee of California Oil Producers.
† Estimate of actual production under prescribed regulations, which do not fix a definite state total allowable.
‡ Texas, California, Oklahoma, Louisiana, Kansas, New Mexico, Arkansas, Michigan.
§ Calculated daily average of actual production at beginning of October, allowing for usual under production of 3½ percent below net allowable, which was figured as of October 1, at 1,485,966 barrels daily. However, allowable normally increases as new wells are completed, and actual daily average production for month is expected to conform with Bureau of Mines Estimate of Demand. Under October order, most Texas fields were ordered shut down October 4, 5, 11, 12, 18, 19, 25, 26 and 31. Panhandle was ordered shut down October 5, 12, 19 and 26.

Markets Continue Strong Although Prices Unchanged

Markets continued generally firm last week, with prices of crude and products unchanged, although hopes of producers for higher crude postings persisted, while prices of products appeared ready to move up concurrently with any marking up of the raw material.

Noncommittal, meanwhile, were both the Office of Price Administration and the Petroleum Coordinator's Office regarding the request of Phillips Petroleum Company for authority to increase crude prices in the Mid-Continent 25 cents a barrel. The OPA last week indicated that it had instigated a general survey of the crude oil situation prior to the Phillips request and that the survey was being rushed as rapidly as possible.

Nothing new was given out, either, on the government's study of the prices of Pennsylvania grade crude, which purchasers were restrained from increasing last August.

Gasoline Supplies Adequate

Lifting of the restrictions of deliveries of gasoline to East Coast service stations had not led late last week to any perceptible tightening of the market for that product, although demand was reported good. In most other districts, also, gasoline was moving in good volume, although some refiners and marketers of the Middle West reported that takings were lighter, while some Mid-Continent plant owners also said demand was somewhat tapering off.

Light fuel oils were attracting increased interest, as cooler weather prevailed, with demand especially good in the Chicago area. On the East Coast, the movement of heating oil and kerosene continued relatively light, however, and suppliers awaited colder weather for stimulating demand. On the Gulf Coast, the markets for the light oils stiffened, and some refiners were asking ¼ cent a gallon more than previously for No. 1 and No. 2 fuel oils and ⅛ cent more for kerosene.

Heavy Fuel Oil Scarce

Heavy fuel oils continued generally scarce, particularly on the East Coast, and it was not expected that return of tankers from British service would perceptibly alleviate the scarcity, for those boats are clean and would be dirtied only reluctantly, and furthermore, supplies of bunker oil at the source on the Gulf Coast are relatively light, having been brought down materially through lease-lend buying of the Navy.

Lubricants remained strong in Western Pennsylvania and in the Mid-Continent. In both districts, many refiners reported that they had no supplies to offer except to regular customers, and some plant owners said they were several weeks behind in filling orders.

California Allowable Unchanged From October

Production quota for California oil fields for November has been set at 613,200 barrels daily, unchanged from the October figure, by the Conservation Committee of California Oil Producers.

In order to provide allotments for newly completed wells a reduction of 2 barrels daily in quotas assigned to the state's top wells was recommended, cutting the top allotment to any well from 143 to 141 barrels daily. This reduction, in total, aplied to 1118 top wells, yielded 2236 barrels daily of quota for reassignment and a like amount was taken from intermediate well classifications, making a pool of 4472 barrels daily of quota available for assignment to new wells during November.

Eastern States Crude Oil Prices

FIELD—	Flat Price	Date Posted
Bradford-Allegany	$2.75	8-25-41
Sw. Pa. Pipe Line	2.40	8-25-41
Eureka Pipe Line, W. Va.	2.34	8-25-41
Corning Grade, Ohio	1.31	5-27-41
Buckeye Crude, Ohio	2.30	6-18-41

Major Crude Oil Price Changes

	Penna. Grade	Mid-Cont. (36 Gr.)	Calif. (26 Gr.)
Jan. 9, 1936	.....	Up 10	.....
Jan. 13, 1936	Up 15	.....	.....
Mar. 7, 1936	.....	.....	Up *18
Dec. 28, 1936	Up 12	.....	.....
Jan. 28, 1937	.....	Up 12	.....
Feb. 24, 1937	Up 10	.....	.....
June 7, 1937	Up 15	.....	.....
Sept. 1, 1937	Cut 22	.....	.....
Oct. 12, 1937	Cut 25	.....	.....
Dec. 1, 1937	Cut 15	.....	.....
Mar. 7, 1938	Cut 17	.....	.....
June 13, 1938	Cut 25	.....	.....
Sept. 1, 1938	Cut 12	.....	.....
Oct. 11, 1938	.....	Cut 20	.....
Jan. 21, 1939	Up 12	.....	.....
Feb. 2, 1939	Up 8	.....	.....
Mar. 6, 1939	Up 12	.....	.....
Oct. 6, 1939	Up 25	.....	.....
Nov. 1, 1939	Up 15	.....	.....
Dec. 1, 1939	Up 10	.....	.....
Jan. 1, 1940	Up 25	.....	.....
Feb. 1, 1940	.....	.....	Cut *7
May 22, 1940	Cut 25	.....	.....
June 18, 1940	Cut 25	.....	.....
July 12, 1940	Cut 25	.....	.....
Aug. 28, 1940	Cut 15	.....	.....
Nov. 12, 1940	Up 15	.....	.....
Dec. 17, 1940	Up 15	.....	.....
Jan. 27, 1941	Up 15	.....	.....
April 1, 1941	.....	Up 5	.....
April 23, 1941	Up 10	.....	.....
April 24, 1941	.....	.....	Up *6
May 19, 1941	.....	Up 10	.....
May 21, 1941	Up 15	.....	.....
May 22, 1941	.....	.....	Up *6
June 18, 1941	Up 20	.....	.....
Aug. 14, 1941	Up 23	.....	.....
Aug. 25, 1941	Cut 23	.....	.....

* Signal Hill 26 gravity.

CRUDE OIL PRICES IN CALIFORNIA

Prices per barrel in field, posted by Standard Oil Company of California, effective May 23, 1941
All gravities above those quoted take highest price offered in that field

Gravity	Signal Hill (Long Beach)	Wilmington	El Segundo	Seal Beach	Huntington Beach	Inglewood	Playa del Rey	Olinda, Brea Canon	Athens-Rosecrans	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	Newhall, Kern River, Kern Front, McKittrick, Round Mountain	Greeley, Canal, Wasco	Coles Levee	Mountain View	Elk Hills, Buena Vista Hills, Midway-Sunset, Lakeview Area	Lost Hills	Coalinga	Kettleman Hills	Elwood Terrace
14-14.9	....	$0.68	....	....	$0.71	....	....	$0.70	....	$0.70	$0.70	$0.70	$0.72	....	....	$0.73	....	....	....	$0.73	$0.73	$0.73	....	....
15-15.9	....	.71	....	....	.75	$0.76	....	.72	....	.72	.71	.72	.72	....	....	....	....	....	....	.73	.73	.73	....	....
16-16.9	....	.74	$0.79	....	.79	.79	....	.75	....	.74	.73	.75	.72	....	....	....	....	....	....	.73	.75	.73	....	....
17-17.9	....	.78	.82	....	.82	.82	....	.78	....	.77	.76	.78	.72	....	....	....	....	....	....	.75	.78	.73	....	....
18-18.9	$0.80	.82	.86	....	.86	.85	....	.81	....	.80	.79	.82	.74	....	....	....	....	....	....	.78	.81	.73	....	....
19-19.9	.84	.86	.90	....	.89	.88	....	.85	....	.83	.82	.85	.77	....	....	Wheeler Ridge	....	....	$0.73	.81	.84	.75	....	....
20-20.9	.88	.90	.94	....	.93	.92	$0.80	.88	....	.86	.85	.89	.80	....	....	....	....	....	.76	.85	.87	.77	....	....
21-21.9	.92	.94	.98	....	.96	.95	.84	.91	....	.89	.89	.92	.84	....	....	....	....	....	.79	.90	.90	.80	....	....
22-22.9	.96	.98	1.02	$0.88	.99	.98	.87	.95	....	.93	.93	.96	.87	....	....	$0.76	....	....	.83	.94	.93	.83	....	....
23-23.9	1.00	1.02	1.05	.92	1.02	1.01	....	.98	....	.97	.98	1.00	.91	....	....	.80	....	....	.87	.99	.96	.86	....	....
24-24.9	1.03	1.06	1.07	.97	1.05	1.04	F.O.B.	1.01	....	1.01	1.02	1.03	.94	$0.99	....	.83	....	....	.90	1.03	.99	.89	....	....
25-25.9	1.07	1.09	1.10	1.01	1.08	1.07	Our	1.04	....	1.05	1.06	1.07	.98	1.02	....	....	....	....	.94	1.07	1.01	.92	....	....
26-26.9	1.11	1.12	1.12	1.06	1.11	1.10	Pipe	1.08	....	1.09	1.10	1.11	1.01	1.06	....	....	....	....	.97	1.11	1.04	.95	....	....
27-27.9	1.15	1.15	1.15	1.10	1.14	1.14	Line	1.11	....	1.13	....	1.15	1.05	1.10	$1.04	....	....	....	1.01	1.15	1.07	.98	....	....
28-28.9	1.18	1.18	1.17	1.15	1.17	1.17	....	1.14	....	1.17	....	....	1.08	1.13	1.08	....	....	....	1.04	1.19	1.10	1.00	....	....
29-29.9	1.20	1.21	....	1.19	1.20	1.20	....	....	$1.17	....	....	....	1.12	1.17	1.12	....	....	....	1.07	1.24	1.13	1.02	....	....
30-30.9	1.23	1.24	....	....	1.23	1.22	....	....	1.21	....	....	....	1.15	1.21	1.15	....	$1.01	$1.09	1.10	1.28	1.16	1.04	....	F.O.B
31-31.9	....	....	....	....	....	1.24	....	....	1.25	....	....	....	1.19	1.24	1.19	....	1.04	1.12	1.14	....	....	1.06	....	Ship
32-32.9	....	....	....	....	....	....	....	....	1.29	....	....	....	1.23	1.28	1.23	....	1.07	1.14	1.17	....	....	1.09	....	....
33-33.9	....	....	....	....	....	....	....	....	1.32	....	....	....	1.27	....	1.26	....	1.10	1.17	....	....	....	1.11	....	$1.22
34-34.9	....	....	....	....	....	....	....	....	1.36	....	....	....	1.31	....	1.30	....	1.13	1.20	....	....	....	1.13	....	1.25
35-35.9	....	....	....	....	....	....	....	....	....	....	....	....	1.35	....	....	....	1.16	1.22	....	....	....	....	$1.23	1.28
36-36.9	....	....	....	....	....	....	....	....	....	....	....	....	1.39	....	....	....	1.19	1.25	....	....	....	....	1.26	....
37-37.9	....	....	....	....	....	....	....	....	....	....	....	....	1.43	....	....	....	1.22	....	....	....	....	....	1.29	....
38-38.9	....	....	....	....	....	....	....	....	....	....	....	....	1.47	....	....	....	1.25	....	....	....	....	....	....	....
39-39.9	....	....	....	....	....	....	....	....	....	....	....	....	1.51	....	....	....	....	....	....	....	....	....	....	....
40-40.9	....	....	....	....	....	....	....	....	....	....	....	....	1.53	....	....	....	....	....	....	....	....	....	....	....

GRAVITY-SCALE CRUDE OIL PRICES IN MID-CONTINENT FIELDS

Posted in most instances between May 19 and May 21, 1941

GRAVITY	Oklahoma-Kansas: Stanolind, Gulf, Texas, Skelly, Barnsdall, Tidewater, Sinclair, Phillips	Oklahoma-Kansas: Carter, Magnolia, Shell	North Louisiana-Arkansas: [1]Rodessa, etc.	North Louisiana-Arkansas: [2]Champagnolle, etc	North Louisiana-Arkansas: Bunkie, Eola, Olla. (by Standard)	North Louisiana-Arkansas: Lisbon, La. (by Gulf)	North Louisiana-Arkansas: [3]Atlanta, Buckner, etc., Ark.	Inland Texas and New Mexico: North and West Central Texas	Inland Texas and New Mexico: [4]Eastern Texas	Inland Texas and New Mexico: West Texas, [17]Panhandle, New Mexico	South Texas: [6]Refugio Type	South Texas: [6]Mirando Type	Texas Gulf Coast: [7]Gulf Coast	Texas Gulf Coast: [8]Anahuac Type	Texas Gulf Coast: [9]Dickinson Type	Louisiana Gulf Coast: [10]Gulf Coast	Louisiana Gulf Coast: [11]Standard of La.	Louisiana Gulf Coast: [12]Texas Co.	Louisiana Gulf Coast: [13]Texas Co.	Louisiana Gulf Coast: [14]Magnolia Pet. Co.	Louisiana Gulf Coast: [15]Shell Oil Co.	Louisiana Gulf Coast: Jennings (by Gulf)	[16]Rocky Mt. Area (Salt Creek, etc.)
17-17.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	$0.94	....	....	....
18-18.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.96	....	....	....
19-19.9	....	....	....	....	....	....	....	....	$0.80	$0.70	$1.08	$1.03	$1.06	$0.98	$0.93	$1.06	....	....	....	.98	$0.99	....	....
20-20.9	$0.85	$0.75	....	....	....	....	$0.68	$0.78	.82	.72	1.10	1.05	1.08	1.00	.95	1.08	$0.90	....	....	1.00	1.01	....	....
21-21.9	.87	.78	....	....	....	....	.70	.80	.84	.74	1.12	1.07	1.10	1.02	.97	1.10	.92	....	....	1.02	1.03	....	....
22-22.9	.89	.81	....	....	....	....	.72	.82	.86	.76	1.14	1.09	1.12	1.04	.99	1.12	.94	....	....	1.05	1.05	....	....
23-23.9	.91	.84	....	....	....	....	.74	.84	.88	.78	1.16	1.11	1.14	1.06	1.01	1.14	.96	....	....	1.08	1.07	....	....
24-24.9	.93	.87	$0.88	$0.86	$0.98	....	.76	.86	.90	.80	1.18	1.13	1.16	1.08	1.03	1.16	.98	....	....	1.11	1.09	....	....
25-25.9	.95	.90	.90	.88	1.00	....	.78	.88	.92 .97	.82	1.20	1.15	1.18	1.10	1.05	1.18	1.00	....	....	1.14	1.11	....	....
26-26.9	.97	.93	.92	.90	1.02	....	.80	.90	.99	.84	1.22	1.17	1.20	1.12	1.07	1.20	1.02	....	....	1.17	1.13	....	....
27-27.9	.99	.96	.94	.92	1.04	$0.81	.82	.92	1.01	.86	1.24	1.19	1.22	1.14	1.09	1.22	1.04	....	....	1.19	1.15	....	....
28-28.9	1.01	.99	.96	.94	1.06	.83	.84	.94	1.03	.88	1.26	1.21	1.24	1.16	1.11	1.24	1.06	$1.06	....	1.21	1.17	....	$0.96
29-29.9	1.03	1.02	.98	.96	1.08	.85	.86	.96	1.05	.90	1.28	1.23	1.26	1.18	1.13	1.26	1.08	1.08	....	1.23	1.19	....	.98
30-30.9	1.05	1.05	1.00	.98	1.10	.87	.88	.98	1.07	.92	1.30	1.25	1.28	1.20	1.15	1.28	1.10	1.10	$1.05	1.25	1.21	....	1.00
31-31.9	1.07	1.07	1.02	1.00	1.12	.89	.90	1.00	1.09	.94	1.32	1.27	1.30	1.22	1.17	1.30	1.12	1.12	1.07	1.27	1.23	$1.07	1.02
32-32.9	1.09	1.09	1.04	1.02	1.14	.91	.92	1.02	1.11	.96	1.34	1.29	1.32	1.24	1.19	1.32	1.14	1.14	1.09	1.29	1.25	1.09	1.04
33-33.9	1.11	1.11	1.06	1.04	1.16	.93	.94	1.04	1.13	.98	1.36	1.31	1.34	1.26	1.21	1.34	1.16	1.16	1.11	1.31	1.27	1.11	1.06
34-34.9	1.13	1.13	1.08	1.06	1.18	.95	.96	1.06	1.15	1.00	1.38	1.33	1.36	1.28	1.23	1.36	1.18	1.18	1.13	1.33	1.29	1.13	1.08
35-35.9	1.15	1.15	1.10	1.08	1.20	.97	.98	1.08	1.17	1.02	1.40	1.35	1.38	1.30	1.25	1.38	1.20	1.20	1.15	....	....	1.15	1.10
36-36.9	1.17	1.17	1.12	1.10	1.22	....	1.00	1.10	1.19	1.04	1.42	1.37	1.40	1.32	1.27	1.40	1.22	1.22	1.17	....	....	1.17	1.12
37-37.9	1.19	1.19	1.14	1.12	1.24	....	1.02	1.12	1.21	1.06	1.44	1.39	1.42	1.34	1.29	1.42	1.24	....	1.19	....	....	1.19	1.14
38-38.9	1.21	1.21	1.16	1.14	1.26	....	1.04	1.14	1.23	1.08	1.46	1.41	1.44	1.36	1.31	1.44	1.26	....	1.21	....	....	1.21	1.16
39-39.9	1.23	1.23	1.18	1.16	1.28	....	1.06	1.16	1.25	1.10	1.48	1.43	1.46	1.38	1.33	1.46	1.28	....	1.23	....	....	1.23	1.18
40 & Up	1.25	1.25	1.20	1.18	1.30	....	1.08	1.18	1.27	1.12	1.50	1.45	1.48	1.40	1.35	1.48	1.30	....	1.25	....	....	1.25	1.20

[1] Gulf schedule for Caddo, Homer, Haynesville, Bull Bayou, Crichton, De Soto, El Dorado and Rodessa, Texas. Standard of La. schedule for Cotton Valley, Rodessa, Shreveport (Cross Lake) Magnolia schedule for Haynesville, Cotton Valley, Rodessa, and Miller Co., Ark. Texas Co. schedule for "North Louisiana."

[2] Schedule of Standard of La. for Caddo, De Soto, Sabine, Fouke, Homer, Miller Co., Sugar Creek. Schedule of Root Petroleum Co. for Nick Springs, Urbana light, Schuler sweet, Rainbow, South Field (El Dorado), and Champagnolle.

[3] Schedule of Standard of La. for Atlanta, Buckner, Magnolia, Schuler: Jones sand, Village. Schedule of Root Petroleum Co. for Schuler: Reynolds lime, and Schuler: Jones sand.

[4] Humble schedule for Anderson, Cherokee, Limestone, and Navarro counties and Navarro Crossing field, except that prices from 80 to 92 cents represent postings only for Hawkins field, Wood County. Rodessa, Texas, prices are same as in Rodessa, La.-Ark.

[6] Schedule for Refugio, E. White Point, Greta, Melon Creek, Midway, Minnie Bock, O'Connor-McFaddin, Plymouth, Saxet, Taft, and Tom O'Connor.

[6] Schedule for Blanchard, Bridwell, Colorado, Comitas, Eagle Hill, Escobas, Fitzsimmons, Glen, Government Wells (N. and S.), Heyser, Hoffman, Kelsey, Kohler, Loma Novia, Lundell, Manila, Mirando Valley, Placedo, Randado, Sarnosa, and Tesoro.

[7] Humble schedule for Amelia, Clear Lake, Goose Creek, Hastings, Magnet, Mykawa, Mykawa new, Raccoon Bend, South Thompsons, Sugarland, Thompsons, Webster. Texas Co. schedule for Arriola, Ganado, Hamman, Hillje, Humble, Kubela, Magnet, Manvel, Markham, Mauritz, Old Ocean, Pickett Ridge, Port Neches, Sour Lake, West Columbia, Withers. Pan American Prod. Co. schedule for Hastings and South Houston. Gulf schedule for Spindle Top, Sour Lake, Lovells Lake, West Beaumont, Goose Creek, South Liberty, Big Creek, Blue Ridge, Fannett, Moore, Barbers Hill, Hankamer, Thompsons, Lochridge, Dyersdale, and Hull (old) crudes. Sun schedule for Barbers Hill, Batson old, Cotton Lake, Esperson below 35 gravity, Goose Creek, Greens Lake, Hull below 25, Humble below 35, Nome, North Dayton below 25, Orange, Saratoga, Sour Lake, South Liberty.

[8] Humble schedule for Anahuac, Angleton, Cedar Point, Fishers' Reef, Hull old and new, Pierce Junction, Red Fish Reef, Turtle Bay fields. Sun schedule for Anahuac, Caplen, and Turtle Bay. Gulf schedule for Anahuac, Hull new. Pierce Junction, Orange and Thompsons deep.

[9] Humble schedule for Dickinson, Gillock, Hardin, League City, and Rowan fields. Pan American Prod. Co. schedule for Gillock crude.

[10] Sun Oil Co. schedule for Bayou Blue, Chacahoula, Fausse Pointe, Hackberry (E. and W.), and Vinton. Texas Co. schedule for Bay St. Elaine, Caillou Island, Iberia, Lake Barrek, Lake Pelto, Leesville and Port Barre for crude ranging in gravity up to 27-27.9; for lighter oils in those fields see Footnote 12. Gulf schedule for Edgerly, Starks, Vinton, E. Hackberry Cameron Meadows, Leesville. Deduct 10 cents for Gulf's prices for Timballer Bay, Grand Bay, Quarantine Bay, and West Bay. Deduct 2 cents for Standard of La. prices for University (Baton Rouge) crude of 30 to 35.9 gravity.

[11] Standard of La. schedule for Bayou Mallet, Choctaw, Darrow, Jeanerette, Lirette, N. Crowley, S. Crowley, Port Barre, Potash, Roanoke, St. Martinville. Deduct 10 cents for Anse La Butte.

[12] Texas Co. schedule for Bateman Lake, Dog Lake, Fausse Point, Horseshoe Bayou, Jefferson Island, Plumb Bob, Vermilion Bay, West Cote Blanche, and Delta Duck Club. Add 8 cents to these prices for Texas Co. postings for 28 or higher gravity at Bay St. Elaine, Caillou Island, Iberia, Lake Pelto, Leesville, Port Barre, and Lake Barre.

[13] Texas Co. schedule for Delta Farms, Golden Meadows, Lake Salvador.

[14] Magnolia schedule for Lockport, Cameron Meadows, West Gueydan.

[15] Shell Oil Co. schedule at Iowa, Black Bayou, White Castle. For Shell's prices at Roanoke and Chalkley fields deduct 5 cents. For Shell's prices at Gibson, South Houma, Hester, and West Lake Verret fields deduct 10 cents.

[16] Sinclair-Wyoming Oil Co. prices at Salt Creek, Lost Soldier, Iron Creek, effective May 20, 1941. Deduct 10 cents for East Mahoney and deduct 20 cents for Mahoney and Wertz.

[17] Add 3 cents for Panhandle prices.

Mid-Continent Flat Prices

FIELD—	Flat Price	Date Posted
Arkansas:		
Big Creek, Dorcheat, McKamie	$1.15	5-22-41
Smackover, Heavy	.83	5-22-41
Louisiana, North:		
Cotton Valley Distillate	1.30	5-22-41
Cotton Valley (Holloway Sand)	1.25	5-22-41
Lisbon Distillate	1.20	5-22-41
Louisiana, South:		
Erath	1.21	5-21-41
Garden Island	1.36	5-21-41
Happytown	1.15	5-20-41
Lafitte, Paradis	1.19	5-21-41
Lake Arthur & Tepetate	1.18	5-21-41
Lake Mongoulois	1.36	5-21-41
Ville Platte	1.20	5-21-41
Texas:		
Alice, Benavides (No. Sweden) Ben Bolt, Clark-Muil, Sun and Tom Graham	1.35	5-21-41
Cayuga	.90	5-21-41
Clay Creek	1.00	5-22-41
Cleveland	1.26	5-21-41
Conroe	1.43	5-21-41
Darst Creek	1.14	5-21-41
Esperson 35 gravity and above and S. Esperson (Sun Oil Co.)	1.30	5-22-41
East Texas, Flag Lake	1.25	5-20-41
Flour Bluff, East Flour Bluff, and La Rosa	1.33	5-21-41
Hockley-Cochran Counties	.87	5-21-41
Livingston, Cleveland	1.25	5-20-41
Long Lake	1.23	5-21-41
Luling	1.05	5-21-41
Lytton Springs	1.17	5-21-41
North Rincon	1.35	5-22-41
Salt Flat, North Salt Flat, Darst Creek, Hilbig, Carroll, Clark, Zoboroski	1.14	5-21-41
Satsuma, Tomball	1.40	5-21-41
Sun Oil Co. at Batson (new), Fig Ridge, Hardin, Hull 25 and above, Humble 35 and above, LaBelle, North Dayton 25 and above, Oyster Bayou, Seabreeze, South China, West Orange, and Willow Slough	1.25	5-22-41
South Cotton Lake	1.35	5-22-41
Sun	1.35	5-22-41
Talco	.79	5-21-41
Van	1.08	5-21-41
Yates (Deep)	.95	5-20-41
Yates (Shallow)	.82	5-20-41

Michigan Prices

Central (Basin):		
Porter, Greendale, Crystal, Wise, Midland, Vernon, Saginaw	$1.44	5-27-41
Buckeye, Edenville, Bentley, Beaverton, Monitor, Kawkawlin	1.42	5-27-41
Freeman, Lincoln, Sherman Redding, Temple, Winterfield	1.39	5-27-41
Hamilton-Grout	1.29	5-27-41
Adams	1.27	6- 1-41
Arenac, Clayton, Ogemaw, W. Branch	1.24	5-27-41
Southwest (Shallow):		
Traverse crude in Allegan, Kent, Ottawa, Van Buren Cos.	1.45	6- 2-41
Clare	1.11	5-27-41

Middle West Prices

FIELD—	Flat Price	Date Posted
Lima, Ohio	$1.17	5-28-41
Illinois Basin (Sohio Corp.)	1.37	5-19-41
Lake Centralia-Salem, Illinois	1.37	5-19-41
Eastern Ill.-Western Ind.	1.22	5-21-41
Western Kentucky	1.32	5-21-41
Birk City, Western Kentucky	1.32	5-21-41
Kentucky River, Eastern Ky.	1.43	6-19-41
Big Sandy River, Eastern Ky.	1.38	6-19-41

Rocky Mountain States Prices

Colorado:		
Canon City and Florence	$0.95	4- 1-41
Iles	.97	4- 1-41
Montana:		
Cat Creek	1.15	4- 1-41
Cut Bank	1.00	1- 1-40
Dry Creek	1.02	5-20-41
Sunburst	1.00	5-20-41
New Mexico:		
Artesia	.94	5-21-41
Hogback	1.00	10-11-38
Wyoming:		
Big Muddy	1.03	4- 1-41
Byron	.55	10-11-38
Elk Basin	1.00	5-21-41
Frannie, Light	.70	5-20-41
Frannie, Heavy	.47	5-20-41
Garland	.50	10-11-38
Grass Creek, Light	1.00	5- 1-41
Grass Creek, Heavy	.50	5-20-41
Hamilton Dome	.45	5-20-41
Lance Creek (Ohio Oil Co.)	1.12	7- 1-41
Mill Creek	.72	10-11-38
Oregon Basin	.40	4-20-40
Osage	1.30	10-11-38
Poison Spider	.59	10-11-38
Rock River	1.15	5-21-41
Tensleep	.6515	2- 1-41

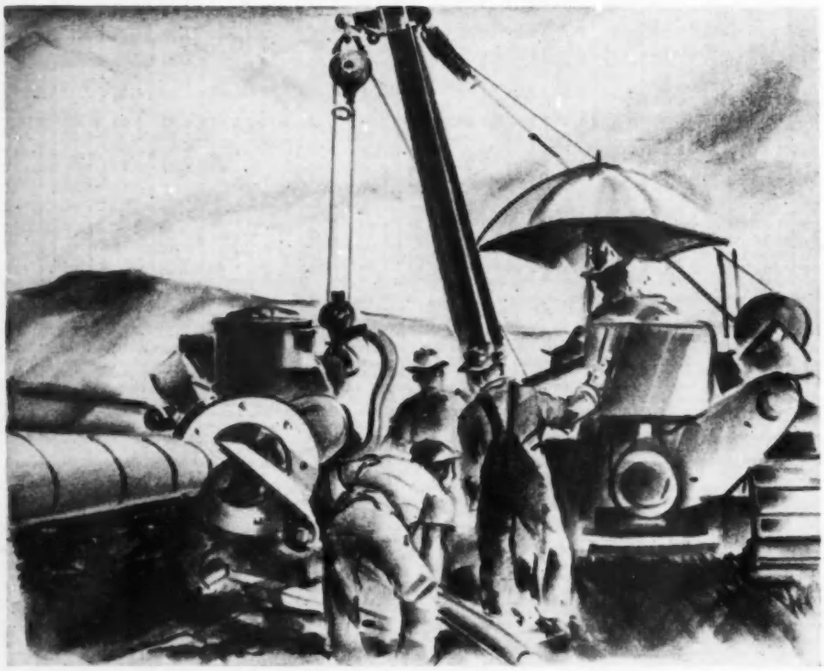
World-Wide Developments

Bias Seen in Mexican Attitude On Expropriation Question

Reports from observers in Mexico City point to the existence of a sharp difference of views among Mexican government officials concerning the best method of approach toward reaching a generally acceptable agreement with the American oil companies. This divergence of views was evidently not considered in Mexican Ambassador Najera's recent statement in Washington that he was authorized by his government to deny that any changes have occurred in Mexico's attitude as disclosed in the recent negotiations at Washington.

It was learned in New York last week that a representative of one of the major oil companies formerly operating in Mexico has submitted the results of an effort to learn the attitude of Mexican government officials toward the American oil companies' rejection of the settlement recently offered in Washington. In general, according to the report, there is but little criticism of the companies. On the contrary there is a disposition to criticize Mexican officials most directly concerned with negotiating an acceptable settlement. President Camacho is declared sharply disappointed with this group after being led to believe that a settlement could be reached on Mexico's terms. Camacho strongly desires a satisfactory agreement with the American oil companies, it is reported, because he is convinced that in the long run the re-entry of foreign capital into Mexico is essential to Mexican economic development.

The above summary of the situation is supported by a recent report from Mexico City. It is declared an essential condition to reaching a settlement of the controversy must be a lessening of the "Cardenas influence" in the government. It so happens that the Mexican spokesmen who have recently been in Washington—Ambassador Najera, Minister of Finance Suarez and Minister of Labor Tellez—are listed as partisans of Former President Cardenas, under whose administration the oil expropriations occurred in 1938. At no time has the Mexican government had in Washington a representative known as a member of the conservative element in Camacho's administration.



"COATING AND WRAPPING" from a lithograph by E. M. Schlwetz

LOCATED in the capital of Texas' expanding oil industry, First National has watched its evolution from primitive methods to the highly efficient methods employed today.

So, too, has First National observed and kept pace with the rapidly expanding banking requirements of the industry. Every department of the oil industry—production, transportation, refining, marketing—finds First National equipped for its service. That's why oil men in increasing numbers are making the First National their bank.

FIRST NATIONAL BANK
IN HOUSTON
MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

Japan's Storage Estimated Enough for Two Years

Disclosure last week that oil shipments from the United States to Japan have ceased partially explains the recent Japanese government order prohibiting sales of gasoline to all private cars and commercial vehicles except by special permission. Efforts are being made to carry on transportation with synthetic fuels, of which Japan produces a small amount, and producer gas.

Last year the United States exported to Japan about 24,000,000 barrels of crude and refined products, Netherlands East Indies, 9,000,000 barrels, Iran, 1,000,000 barrels, and British Borneo, about 300,000 barrels, a total of 34,300,000. With supplies from these sources shut off by the United States, Great Britain and the Netherlands in successive steps taken since last July, Japan is thrown back upon about 4,000,000 barrels yearly from Manchukuo and Sakhalin Island and on her own small domestic production. Japan's reserves of crude and refined oils are unknown but are estimated at between 60 and 80 million barrels, enough to last about 2 years. The civilian population is being severely rationed in an effort to enable the government to pursue its militaristic course in Asia despite low reserves and dwindling imports.

New Canadian Refinery Construction Progressing

Imperial Oil Company, Ltd., is proceeding rapidly with the erection of its new one million dollar plant at Regina, Saskatchewan, to increase the production of aviation gasoline.

One unit of the plant is designed to produce gasoline from gas as well as increase aviation gasoline production. A second unit is a gas absorption and naphtha reforming plant, commonly known as a cracking plant.

U. S. FIELD OPERATIONS

Illinois Basin

Casing set for Tests In 2 Wildcat Wells

Casing set in wildcat tests in Clay, White Counties; half mile extension well to Parkersburg pool, Richland County, flows; saturation found at Perry County wildcat; St. Peter formation being cored in Fayette County.

Clay County: Carter Oil Co.'s A. M. Keller 1, C W½ SW SW 4-2n-5e, waiting on cement with pipe at 2770 ft on Aux Vases sand. A non-commercial show in McClosky lime was found at 2856-2859 but test was plugged back to 2790 ft. On drill stem Aux Vases yielded 90 ft of oil and 190 ft of oil-cut mud in 2 hours. Test is mile west of Xenia and 10 miles from the nearest production.

White County: Sun Oil Co.'s No. 1 Strow, SE SE NW 7-4s-9e, 1½ mi east of Centerville and a half mile east of Yingling and Hays Shepard 1, recent Cypress discovery, WOC with pipe on Tar Springs, pay at 2538-51 ft. Nearest substantial production is in the pool west of Centerville from McClosky lime.

Richland County: Central States and R. B. Martin's Kent Community 1, C E½ SE NE 31-2n-14w, half mile southwest extension of Parkersburg field, flowed total of 3918 natural in first three days making 1520, 1231 and 1167 daily. Same operators building derrick for Kent Community 2, location south Kent 1, C E½ NE SE 31-2n-14w; surface casing set for Bander and Martin's Wells 1, C E½ SW NE 31-2n-14w, one fourth mile west of production.

Martin's Diescher, C EL N½ NW SW 26-2n-10e, wildcat, dry and abandoned, total depth 3331.

E. G. Nolf et al Anna Nuding 1, C W½ SW NW 6-4n-14w, pool opener, testing McClosky at 3028-36 after 500 gallon acid treatment; expected to make 200-barrel well on pump.

Perry County: G. H. Blankenship's Herbert George 1, 12 miles east and 6 miles north of Pinckneyville, making drill-stem test after recovering 4½ ft of saturation in core of Bethel at 1262-72; slight saturation recovered in core at 1252-62. There is no production in the county at present.

Fayette County: Carter Oil Co.'s Jennie Brauer 6, SE SE 21-8n-3e, first St. Peter test in Loudon pool, coring below 4600 after topping St. Peter at 4458; cored at 4464-72 and 4472-86 were dry.

Edwards County: Tide Water Associated Oil Co.'s Provident Mutual 1, C E½ NE SE 13-2s-10e, attempted half mile south extension to Bone Gap pool, drilling at 2570.

Wayne County: Semi-wildcat on northeast edge of Johnsonville pool, Sun Oil Co.'s Winter 1, C S½ SW NW 31-1n-7e, WOC with pipe on Aux Vases at 3076.

Six miles south of Johnsonville pool Bell Brothers' discovery, Fuhrer 1, C W½ NE NW 33-1s-6e, putting on pump to test McClosky at 3158-67; made 115 barrels of oil on four hour swab test after 2000 gallons of acid.

Midway between Johnsonville field and Bell Brothers' discovery, Kingwood Oil Co.'s O'Neil 1, C S½ SE SE 17-1s-6e, swabbing and testing, made 40 barrels of oil in 10 hours from McClosky at 3089-96 after perforating casing at 3176-82, 3154-60, 3165-62, 3089-96.

Hamilton County: Locations have been staked for the following wildcats: Mid-Sun Oil Co.'s Babler 1, S½ SW SE 36-4s-5e; Mid-Sun's Provident Mutual 1, N½ NE NW 22-5s-5e; Ryan Oil Co.'s Mitchell 1, C S½ SE SW 29-4s-6e.

Franklin County: Location has been staked for a wildcat in the SW SW NW 1-5s-1e, N. E. Dexter's McLaughlin 1.

Indiana

Posey County: Carter Oil Company's W. D. Maier 1, C N½ NE SW 1-7s-14w, prospective new pool, northwest of Mt. Vernon, drilling ahead for McClosky at 2700 ft, after getting slight Aux Vases show at 2675 ft.

Starting at surface elevation of 425 ft, Cypress saturation at 2441-77 ft showed 530 ft of oil, 180 ft of oil cut mud, 192 ft of drilling mud in 2-hour drill-stem test. Second and best showing was in the Waltersburg sand, 1965-74 ft, well flowed oil over derrick on 50-minute drill-stem test.

Sam Yingling's Welborn 1, SW NE NE 1-7s-12w, north outpost to Heusler Dome production, and a Sun Oil Company farmout, was completed in Waltersburg sand at 1754-72 ft, and initialed 108 bbls a day, pumping.

Seven miles west of Mt. Vernon, Cherry and Kidd's Gyger 1, NE NE NE 7-7s-14w, was coring in Cypress section at 2523 ft. A drill-stem test of upper Cypress saturation at 2497 ft showed only 25 ft of mud and no oil in 50 minutes.

Spencer County: Goldsmith's Swallow 1, SW SE SE 32-6s-7w, ¼ mile east of production in the Hatfield area, initialed 48 bbls a day, pumping, from the Waltersburg sand at 980-91 ft, reported making about 18 percent water.

Gibson County: Spudding was Roy Benoist's Drum 1, C W½ SE SW 24-1n-10w, east offset to R. N. Sylvestre's Earl Potts 1, McClosky discovery well.

Oklahoma

Apache Field Extended By Major Producer

Apache field extended east by major producer; new oil area looms for Comanche County; West Hotulke pool gets southern extension in Wilcox sand zone; wildcat strike for Creek County; hopes of townsite play at Guthrie blasted; incessant rains slow Sooner field work.

Caddo County: Texas Co.'s Maynahona 1, SW SW NE 2-5n-12w, drilled to 3706 ft in Wilcox sand, set 7-in 3505 ft, hole drilled out to 3600 ft, well flowed 195 bbls oil on first hour test, later pinched to 1-in tubing choke, no gauge as tankage scarce, well extends Apache pool one location east.

Pottawatomie County: Atlantic Refining Co.'s Nesbitt 1, SE NW NW 27-9n-4e, has extended Wilcox sand zone of West Hotulke pool two locations south, well drilled to 4689 ft in Second Wilcox sand and was swabbing 16 bbls oil per hour; operator's Higbee 3, NW SE SE Sec 22, in pool proper, drilled out ce-

Congratulations to THE OIL WEEKLY for 25 years of splendid service to the oil industry.

★

Strake Petroleum, Inc.

3012 GULF BUILDING

HOUSTON, TEXAS

ment plug to 4622 ft in sand topped at 4605 ft and was bailing.

Comanche County: Denver Producing & Refining Co.'s Hayes 1, NE NE SW 14-4n-11w, northwest of Elgin, topped Bromide sand 2312 ft, took 5 cores to 2389 ft revealing sand and dolomitic sand carrying oil and good odor, running casing 2380 ft.

Creek County: Deep Rock Oil Corp.'s Meadors 1, SE NE NE 16-15n-7e, cable tool wildcat northeast of Stroud, drilled to 3952 ft in dolomite on top of Wilcox sand, set bradenhead, cleaned out and had 900 ft oil standing in the hole.

Logan County: Harry Miller et al's Katschor 1, C N½ NE SW 7-16n-2w, on southwestern edge of Guthrie townsite, drilled to 5938 ft in shale, plugged back to 5800 ft for drill stem test in Simpson dolomite, plugging orders may follow.

Kansas

Rice County Well Opens 32nd Field of Year

Thirty-second oil field for 1941 opened; good saturation indicates pool for McPherson County; Chase pool extended north; acidizing for test of prospective Ellis County field.

Rice County: Aladdin Petroleum Corp.'s Lackey 1, C WL SE SE 1-21n-6w, 1½ mi east Welch pool, has been named as Kansas' 32nd oil field for 1941, well flowed 278 bbls daily from Mississippi Chat at 3366 ft.

McPherson County: M. & L. Oil Co.'s Johnson 1, C W½ SW SE 7-17s-3w, 1½ mi west of Lindsborg pool, cored saturation in first 1½ ft of Viola lime topped at 3347 ft, casing set on top which was structurally high, may open pool.

Chase Pool: Skelly's Grissell 1, C SL SW NW 9-19s-9w, extends Chase pool of Rice County north, well received potential of 1800 bbls daily from Arbuckle lime at 3249-50 ft.

Ellis County: Falcon-Seaboard Drilling Co.'s Wassinger 1, NE NE SE 20-11s-18w, 3½ mi southwest of Burnett pool, jetting acid through tubing for test of Arbuckle dolomite topped at 3515 ft and penetrated to 3538 ft, test cored spotted saturation in formation.

Barton County: Helmerich & Payne, Inc.'s Unruh 1, SWc NW 17-20s-15w, prospective pool opener northwest of Pawnee Rock, cemented off perforations in Arbuckle dolomite to shut off water.

FOSTER... the Greatest Name in CATHEADS

Hi-Speed Cathead (Junior Type)

Backed by 40 Years Experience in the Drilling Business, Including 15 Years of Cathead Manufacture

TODAY WE POINT WITH PRIDE TO THESE CATHEAD FACTS: We have the most complete line of cathead equipment on the market . . . Foster Hi-Speed Cathead (Standard and Junior Types); Foster Make-and-Break Cathead; Foster Catline Hoist. . . . A Foster Cathead to suit every need.

More major manufacturers of rotary draw works use Foster Catheads as standard equipment than all others combined.

Major oil companies and contractors use more Foster Catheads than all other makes combined.

CONSULT YOUR SUPPLY STORE OR WRITE

FOSTER CATHEAD COMPANY

BOX 1675 · WICHITA FALLS, TEXAS

North Texas

Floods Threaten Wells; Young County Well Drills

North Texas operations greatly retarded by excessive rains and flood waters, with threatened damage to K-M-A field deep wells in river bottom lands. Northeastern Young County wildcat dry in Bend, to deepen.

Young County: Kerlyn Oil Co. et al's Garvey 1, Mile southwest farmer, drilling 4360 ft after yielding small volume oil-cut mud and salt water in Bend 4285-4345 ft. Partnership has two discoveries so far this year in northwest portion county.

Clay County: Shell Oil Co.'s Willis 1 extended New York City pool northwest for fourth Missippian producer, flowing 50 bbls oil 3 hours, acidized 2000 gallons through perforations 6350-80 ft. Earlier acid treatments through perforations 6390-6400 ft and 6360-80 ft failed to develop production. This new well recorded structural dip, topping Bend and Mississippian at 5904 ft and 6190 ft, respectively, first oil saturation 6346 ft. Company's Willis 2, ¼-mile east No. 1, drilling 5970 ft in Bend, topped 5922 ft.

Wildcats: H. L. Hunt Oil Co.'s Langford 1, northeast corner of Clay County, abandoned 2505 ft. Shell's Maddox 1-A, 8¼ miles northwest Ringgold, drilling shale 5230 ft, without shows in Strawn series.

Montague County Wildcats: Continental Oil Co.'s Winder 1, 2 miles east Stoneburg, drilling shaley-lime 6410 ft to explore Ordovician, although Bend producer assured. Drill stem test 6238-58 ft in Bend, topped 6039 ft, yielded 1850 ft oil and 330 ft brackish water, tool open 20 minutes. Benson Bros. and W. B. Omohundro's Riley 1, 3 miles northwest Sunset, entered Bend 5744 ft and Barnett shale 6550 ft, drilling shale 6715 ft. J. A. Chapman et al's Fowler 1, recent Strawn discovery 2½ mi east by north of Bend production in Ringgold pool, plugged back again to 4860 ft account of small amount water showing when well flowed 121 bbls 43-gravity oil 4 hours from sand 4840-47 ft.

Wise County: H. L. Hunt Oil Co's Halman-Pure 1, southwest corner 142½-ac tract, Geo. W. Cash Survey A-156, rigging up for 6000-ft test in Park Springs area, northwest part county. Pure Oil Co. farmed out portion its geo-

IS YOUR *POWER* TRULY *MODERN?*

LOW COST . . . DEPENDABILITY . . . EFFICIENCY ARE YOURS WITH UTILITY ELECTRIC POWER!

COMPARE THESE ADVANTAGES

- Utility Electric Power is quiet, clean and smooth in operation—requires fewer repairs—less maintenance.
- Utility Electric Power provides constant, dependable service . . . at all times . . . under all conditions.
- Utility Electric Power is on a pay-as-you-go basis . . . No capital power investment required.
- Utility Electric Powered equipment has a higher salvage value . . . at all times.
- Utility Electric Power is flexible — easily adapted to your requirements.

● Here's a modern power that fulfills your every requirement for drilling . . . pumping . . . pipelining . . . or refining, and will do the job with utmost efficiency and SAVE YOU MONEY in the end. This statement is based on actual performance records compiled over a period of many years. The result of these records prove one thing . . . that Utility Electric Power is the most modern power available, and can improve on power requirements in practically any case in the petroleum industry. Why not let your Electric Power Service Company prove it to you!

Use Utility Electric Power!

PETROLEUM ELECTRIC POWER ASSOCIATION

Box 1498, Oklahoma City, Oklahoma

Condensed Statement of Condition

OF THE

FROST NATIONAL BANK

TO THE COMPTROLLER OF CURRENCY

AT THE CLOSE OF BUSINESS SEPTEMBER 24, 1941

RESOURCES

Cash		$18,466,683.16
U. S. Government Obligations (all carried at par or less)		20,099,843.55
Investment Bonds and Municipal Obligations (all carried at par or less)		3,298,941.10
Stock in Federal Reserve Bank		72,000.00
Loans and Discounts		6,973,941.13
Interest Earned but not Collected		96,876.38
Building Account		914,092.19
Other Real Estate Owned		1.00
TOTAL		$49,922,378.51

LIABILITIES

Capital Stock		$ 1,200,000.00
Surplus		1,200,000.00
Undivided Profits—Net		479,785.74
Reserved for Taxes, Interest, etc.		167,284.80
Interest and Discount Collected but not Earned		26,313.21
Dividends Declared but not yet Payable		48,000.00
Reserved for Undeclared Dividends		48,000.00
Deposits: Commercial	$26,701,295.91	
Correspondent Banks	8,733,195.99	
Time	7,451,464.76	
Public Funds	3,577,610.61	
Other Deposits, Certified & Cashier's Checks, etc.	289,427.49	46,752,994.76
TOTAL		$49,922,378.51

DIRECTORS

H. LUTCHER BROWN, *President, Brown Paper Co., Monroe, La.*
JOHN M. CATTO, JR., *Insurance*
J. H. FROST, *President*
JOHN FROST, *Capitalist*
T. C. FROST, JR., *Vice President*
LYTLE M. GOSLING, *Pres., Lytle W. Gosling & Co.*
GUS J. GROOS, *Partner E. B. Chandler & Co.*
EDWIN M. JONES, *Oil Producer*
H. L. KOKERNOT, *Cattleman*
J. H. LAPHAM, *Director, The Texas Co.*
NED McILHENNY, *Vice President*
MARRS McLEAN, *Oil Producer*
DICK PRASSEL, *Pres., Prassel Sash & Door Co.*
W. C. RIGSBY, *Capitalist*
CHAS. SCHREINER, *Capitalist and Cattleman*
L. A. SCHREINER, *Pres., Charles Schreiner Bank, Kerrville, Texas*
S. S. SEARCY, *Attorney-at-Law*

SAFETY · · · COURTESY · · · PROMPTNESS

FROST NATIONAL BANK
SAN ANTONIO

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

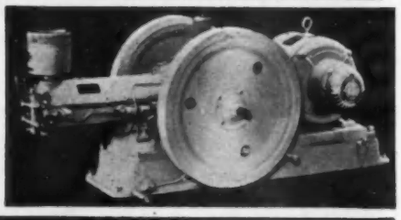
Get All These Money-Saving Advantages of

WITTE DIESELECTRIC PLANTS

1. QUALITY CONSTRUCTION
2. SUPERIOR ENGINEERING
3. EXTRA POWER AT LOW COST
4. RUGGED, COMPACT—PRACTICALLY NO WEAR OUT
5. EASY INSTALLATION—SIMPLE OPERATION

Give you power and light for 1c a K.W.H.; 3 to 30 K.V.A.; 1, 2 and 4 cylinders; vertical or horizontal; manual, electric or automatic control. Easy to buy. SEE YOUR SUPPLY DEALER, or write for facts.

1968 OAKLAND AVE. KANSAS CITY, MO.



WITTE ENGINE WORKS

• LARGEST BUILDER OF SMALL DIESELS •

physical prospect for test. Area considered good prospect as Cranfill. Rodgers et al's McKay 1, 2 miles west Park Springs, showed free oil in 5800-ft Bend, and later junked in Ellenberger 7005-7154 ft.

Jack County: Taubert-McKee and Sinclair Prairie's Hoefle 1, recent discovery, flowed 202 bbls 42-gravity oil 6 hours with ¾-in choke half open, Bend saturation 4817-35 ft. Magnolia's Borden 1, northeast corner of county, drilling 6195 ft. Alma Oil Co's Maxey 1, originally completed for small oil yield through perforations in Mississippian 5278-5320 ft, deepened to Ellenberger 5555-5665 ft without increase. Will plug back to Mississippian.

West Texas

Wells in Yoakum and Pecos Counties Find Shows

Delaware prospects in western Pecos County and Yoakum County wildcat record shows. Abell pool expanded northeast with natural flow from new Permian horizon. Southwest edge Wasson field assigned 7000-foot test. Foster field has new record size producer.

Delaware Wildcat: Pure Oil Co.'s T. P. Land Trust 1-A, C SW SW T&P Sec 31, Blk 49, Tsp 10, extreme west portion Pecos County and on 16,500-acre block, making drill stem test, logged show in top Delaware lime 5053-55 ft, elevation 3311 ft. Situated 10 miles northeast of Humble's Gray 1, which filled with 200 ft oil at 5566 ft and later abandoned 6223 ft. Latter entered Delaware lime 5010 ft and sand 50-69 ft, elevation 3592 ft.

Yoakum Wildcat: Sinclair Prairie's Kleiner 1, 3½ miles northwest of Ownby sector of Waples-Platter pool with intermediate dry hole, confirmed favorable structural position with show gas 5140-60 ft and oil stain and odor 5225-30 ft, elevation 3630 ft. Coring ahead.

Wasson Deep: Amerada Petroleum Corp.'s Hudson 1, C NW NW PSL Sec 60, Blk AX, 3 miles west of regular production on south edge of Gaines County sector, starting on 7000-foot depth contract. Situated 4½ miles west by south of Amon G. Carter's Wasson 5-D, which was completed last December flowing from middle-Permian 6210-6881 ft. Carter's Wasson 4-D is idle after plugging back from Ordivician 11,108 ft to 7000 ft.

Abell Extension: Stanolind Oil & Gas Co.'s Rathjen 1, C Lot 14, H&GN Sec 26, Blk 9, flowed at estimated rate 100 bbls oil hourly on brief drill stem test 3849-3950 ft, elevation 2368 ft, assuring new pay level, tentatively the Tubb zone, which is found to north in Sand Hills. Seven-inch cemented 3885 ft to try for completion. Rathjen 1 is 3700 ft north and same distance northeast of regular Simpson producers, and 4500 ft east by south of a 5693-foot failure. Sinclair Prairie's Silverman-State 2, southwest edge test, made potential 1920 bbls 44-gravity oil ½-in, perforations 5367-82 ft. First pipe line runs from Abell area made by The Texas-New Mexico Pipe Line Co. October 29.

Upper Plains Prospects: Broderick & Calvert, Inc. and Amon Carter's Hayward 1, northwestern Bailey County, drilling 3240 ft on 6600-foot depth contract, topped salt 2310 ft, elevation 3912 ft. George Callihan and C. L. Wagner's Wahlenmaier 1, Crosby County, drilling 3230 ft, entered San Andres lime 2117 ft, elevation 2655

ft. In Motley County, Humble's Matador 1-D, fourth deep test on its Matador 466,500 acre lease taken in 1938, drilling lime 6225 ft. Phillips Petroleum Co.'s Montague 1, projected 6500-foot test for Briscoe County, drilling lime 4420 ft, L. C. Harrison and Tobe Foster's Steck 1, 3 miles west by north of Lubbock County's discovery pumper, drilling 4730 ft, elevation 3247 ft.

Deep Projects: Magnolia's State-Walton 20, Winkler County, idle at 8445 ft in chert, and may not be carried to Ellenberger. In Ward County, Shell's Sealy-Smith 1 drilling lime 7050 ft, Plymouth Oil Co.'s Alford 1, eastern Upton County, drilling cherty-lime 10,110 ft. Humble's Ellwood 1, deepest test for Mitchell County, drilling Pennsylvanian chert 7835 ft, with top Strawn tentatively called at 7760 ft, elevation 2235 ft. Gulf and L. H. Wentz's Millar 2, second projected Ordivician test for geophysical prospect in northeastern Pecos County, drilling lime 2920 ft.

Barnhart Pool: Amerada's University 1-R-B, 4000 ft south by west of its Ellenberger producer in southeastern Reagan County, drilling 5910 ft, and University 1-R-D, C NW SW Sec 1, Blk 48, 1½ miles east of the 9000-foot producer, starting as deep test. Company's University 1-R-C failed to produe in Permian, and dismantling rig at 2790 ft.

Prolific Wells: Gulf's Waddell 47, NEc NW PSL Section 14, south eadge of the main sector of the Gulf-Waddell field, Crane County, earned potential 7486 bbls 36.3-gravity oil open flow, acidizing 5000 gallons at 3500 ft. In Ector County, Broderick & Calvert, Inc.'s Bagley 7, SEc NE T&P Section 17, Block 42, south offset the firm's recently completed record producer for the Foster field, attained new record with open flow 7167 bbls 34.6-gravity oil 24 hours, gas-oil ratio 200/1, shot 170 quarts nitro 4295-4370 ft. Unusually high yield due to being near east edge of structure.

Crane County: Continental's Jones 1, 1½ miles south of Elienberger production in Sand Hills field, unloading acid load after plugging back to 6015 ft from Ellenberger at 6045-6146 ft, when latter yielded abundance of sulphur water. Will make commercial well from Sharp zone at 5720-40 ft and 5905-21 ft in Simpson, topped 5545 ft, elevation 2474 ft.

East Texas

Henderson Well Boosts Yield After Reacidizing

Henderson County deep wildcat boosts yield after reacidizing to warrant follow-up development. Rusk County wildcat resumes after gas blowout in shallow zone. Prospecting scores sharp upturn throughout district.

Henderson County: British American's Young 1, Rodessa zone strike that has been in process of completion several months, flowed 8 bbls 59-gravity oil hourly with 2,800,000 ft gas daily rate on ¼-inch choke, reacidized through perforations 7608-41 ft. Arrangements made to sell oil to East Texas field refinery, delivering by tank truck.

Rusk County: O. W. Killam et al's Bass, 12½ miles southwest of New Salem faulted pool, cleaned up fishing job and resumed drilling at 2991 ft.

"Nope . . . BOTTOM WATER can't slow down our drilling..."
When you hit bottom water—be ready with Eagle Lead Wool. Plug off that part of your well with this soft, springy mineral wool. Under tamping pressure it forms a solid plug that seals off tiniest crevice—becomes a permanent, non-corrosive fixture. Eagle Lead Wool is rapidly installed with Eagle Wire Containers. Shaped like cartridge to carry wool to cavity in one mass. Sizes to fit all casings. Be prepared for bottom water—order today from your jobber.
EAGLE
LEAD WOOL
Seals off bottom water PRONTO!
EAGLE EP PICHER
THE EAGLE-PICHER LEAD COMPANY
CINCINNATI, OHIO
These 3 Eagle Bearing Metals meet most requirements..
Eagle Dreadnaught — for extreme speed and pressure conditions
Eagle Outlasta — for medium speed and pressure conditions
Eagle Durable — for low speed and pressure conditions

BENTEX OIL CORPORATION

Producers and Developers

HOUSTON, TEXAS

2305 NIELS ESPERSON BUILDING

Stray gas, possibly from Nacatoch, caused blowout at 2980 ft.

Limestone County: Bert Weekley et al's Barron 2, fifth consecutive Pettit zone completion for Barron gas-distillate area and 3500 ft east of discovery rated at 30 to 40 bbls 38-gravity oil daily through choke, returning drilling fluid and acid sludge. Used 4000 gallons acid broken saturation 5686-5785 ft in Pettit, topped 5680 ft. Situated on upthrow side fault and first in area to yield oil production, giving rise to possibility prolific gas belt will be flanked by oil zone.

Cayuga Deep: Amerada's Berk 14, Freestone County extension increased distillate yield to 98 bbls daily while producing 2,460,000 ft gas via 20/64-inch choke, used acid in Rodessa perforations 7430-7614 ft. Gas injected into Berk 15, nearby Woodbine oil producer, and distillate consigned to crude battery.

Southwest Texas

Texas Area Maintains Field Discovery Rate

Southwest Texas continues to maintain discovery rate. A new field for Duval County, extensions and new sands in Starr, Nueces, Duval, McMullen, La Salle, Lavaca, Jackson and Live Oak counties.

Mirando District: Humble's Welder Est. 2-E, Gray sur 224, Duval County, crd upper Jackson sd 2460-67 ft, dst using 800 ft wtr cushion rec cushion, 130 ft o, 230 ft mud 9 min, set 5½ in cas to td, woc. Expected to open fld 4 mi nw Fitzsimmons, 13½ mi nw San Diego. Hot prospect, several hundred thousand dollars spent by companies for leases, royalties and exploration.

Hiawatha O&G Co.'s Herberger 6, ¾ mi s Sweden fld, Duval County, flowed est 100 bpd 45 gr plo 3/16 ch, 1250 lbs tp, 1850 lbs cp, perf 4932-37 ft in upper Jackson sd. New fld or new sd and extension.

Trinity Gas Co.'s Yzaguirre 1, 1 mi e disc Sejita fld, Duval County, perf 5375-95 ft, Hockley zone, flow est 50,000,000 cu ft gas open. Extends fld.

La Salle County: Quintana Pet. Corp.'s Washburn 1-B, 6265 ft sw Washburn 1-A, Washburn fld, crd sat o sd 5513-78 ft, dst 5513-24 ft rec 420 ft 43 gr o, 120 ft o cut m, 23 lbs, ¼ & ⅜ ch, 25 min, dst 5513-53 ft flowed plo on 25 min dst, rec 2000 ft o, dr to abt 5725 ft ran cas. Apparently across fault and in same sd in Wilcox zone as disc. Thick sd body indicates major reserve.

Rio Grande Valley: Porter & Pickens' A. Guerra 1, blk 5, sh 6, ½ mi ne disc LaReforma, Starr County, flowed est 168 bpd 42 gr brwn Mirando type plo ⅛ ch tp 600 lbs, cp 800 lbs, perf 6152-54 ft. Opens sd in Vicksburg and first crude prod in dist fld.

Sun's Chapotal Land Co. 5-A, 4187 ft w, 3100 ft n disc Yturria fld, Starr County, crd o sd 4225-36 ft, set 5½ in cas 4226 ft, flowed 145.6 bpd 41.3 gr plo 9/64 in ch, tp 575 lbs, cp 925 lbs, gor 515-1. Extends fld with second prod.

Pan American's E. Hodge 1, outpost Willamar fld, Willacy County, perf above 7861 ft. Dst rec considerable o. Extending fld.

Lower Gulf Coast: W. B. Osborn & Mid-Continent Pet. Co.'s Emma Grove 1, 3100 ft s Burow 1, disc N. Banquette area, Nueces County, dr to 7538 ft, attempt blowout, set 5½ 7078 ft, prep to test thru perf in sd 7034-51 ft. Would open ne sd & extend fld.

Sam E. Wilson, Jr., et al's San Antonio Jt. Stk. Lnd. Bnk. 1, w outpost Agua Dulce, Nueces County, set 5½ in bottom 8005 ft, prep to test thru perf.

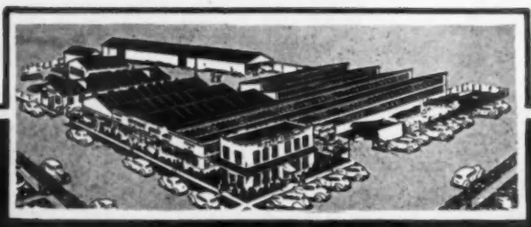
W. S. Boyle et al's Joe Whitley et al 1, 3000 ft n disc Navidad fld, Jackson County, dr to 5007 ft, set 5½ in cas 4200 ft, perf 4053-70 ft, now si as gas well. Opens sd, extends fld.

New North LaWard fld, Jackson County, expanded, series outposts across 4 mile trend, active or location stage.

Gust Tsesmelis' P. S. Joseph 1, sec 9, 2½ mi s Camada fld, Jim Wells County, dr to 6093 ft, took sidewall samples in sd 4783-97 ft, pb to 4800 ft, dst failed, woo but may deepen to 7000 ft.

Balcones Fault Zone: M. H. Dees and Fred Freeland's D. M. Day 3, 100 ft sw Day 2, Austin chalk producer Day fld, Guadalupe County, topped Edwards li 2795 ft, crd in 3 ft, good o show, set casing top lime but cement filled rathole, dr out, no recovery via swabbing, acidized no results, dr out one more foot, still dry. May open Edwards li prod.

Wilcox Trend: Shell Oil Co.'s McManus 1, Brushy Crk pros, Lavaca County, reperf at unannounced level in Wilcox, flowing g & dist, 2200 lbs wp. Opening fld.



McEVOY

COMPANY

"OIL WELL EQUIPMENT" SINCE 1906

TEXAS AT MILBY • HOUSTON, TEXAS • TELEPHONE C-2288

SEE McEVOY'S 20 PAGE SECTION IN YOUR COMPOSITE CATALOG

CHRISTMAS TREES
COUNTER HYDROSTATIC GAS LIFTS
SCREENS
PACKERS • SET SHOES

MILLS BENNETT PRODUCTION COMPANY

GULF BUILDING--HOUSTON, TEXAS

Texas Gulf Coast

Deep Wilcox Well Testing; Tyler County Field Opened

Wilcox wells along trend make production tests; new locations staked in Magnolia area, Montgomery County; new wildcat to be drilled in Winnie area, Jefferson County.

Wilcox Trend: Superior Oil is making third production test on McWhorter 1-B, Lake Creek well drilled to 13,330 ft, deepest on upper Gulf Coast. Test in perforations at 11,595-605 ft flowed 5 percent oil and distillate, remainder mud and salt water. Second test at 11,730-745 ft also flowed salt water. Tests were started near top of deep section and working downward.

Glenn H. McCarthy's Roscoe Seyle 1, Magnolia field opener, flowed 87 bbls 57.7 gravity oil daily through ¼-in choke from perforations 8448-58 ft, tubing 1550, casing sealed. Gas-oil ratio 13,800/1.

George H. Echols has staked two location 1½ mi east of McCarthy's producer. Operator's J. J. Parker 1-A is on 40-ac tract C. Schilling sur, 500 ft from w and 369 ft from s/l of sur and tract which is s 40-ac of 80-ac tr in west end of survey. No. 2-A J. J. Parker is 1361 ft east of No. 1 well.

Tyler County: Stanolind Oil & Gas has opened new Wilcox field in Fred area with completion of James F. Parker et al 1, G.T.W. Collins league, south of Joes Lake field. From perforations 8180-8200 ft, well cleaned into pits, tubing 555 pounds, casing 1000 pounds. Total depth is 8500 ft with casing set at 8303 ft.

Jefferson County: Glenn H. McCarthy has staked Crawford 1, Wildcat Winnie area. Several Frio tests drilled in area. Test spotted 660 ft south and west of northwest corner of southeast quarter of section 158, TNO survey. It is 3 miles southeast of Winnie and 5 miles northeast of Fig Ridge, projected depth 9500 ft.

South Louisiana

Wilcox Well May Be Drilled at Lake Latainer

Wilcox test planned on Lake Latainer prospect, Avoyelles Parish; block assembled to southeast of Lake Misere, Cameron Parish.

Avoyelles Parish: Fred Bates, Lafayette geologist, is reported planning Wilcox test on Lake Latainer prospect, sec 33-3n-5e, 2 mi southwest of H. C. Cockburn's abandoned well that had oil shows. Work is due to start soon.

Tangipahoa Parish: H. L. Hunt, North Louisiana operator, has leased 45,321 acres in Lake Maurepas area for year's option. Atlantic Refining had acreage optioned in 1939 and 1940, releasing it without making selection.

Evangeline Parish: Gulf has completed Easton Plantation Townsite, sec 37-3s-1w, Pine Prairie, flowing 276 bbls daily 5/32-in choke, perforations 8120-30 ft, tubing 1250, casing sealed, total depth 8296 ft.

C. & I. Production cored sand 8233-88

TEX-LA HIGH PRESSURE MUD LINE FITTINGS

Mud Line Tee

Cast from close-grained alloy steel, properly heat-treated and precision machined. Flanged or screwed connections to A.P.I. specifications. Complete range of sizes and styles. See your Composite Catalog for complete details.

TEXAS AND LOUISIANA TOOL CO.
Plants at Liberty and Beaumont, Texas
LUKE PIVOTO, President

Mud Line Ell with Union

Mud Line Cross

Mud Line Tee with Union

Texas Gulf Producing Company

Oil and Gas Building

HOUSTON, TEXAS

Egan WATER CANS and COOLERS

Made of copper alloy iron, with recessed bottom and of triple braced construction.

Dead air space surrounding the inner can assures effective insulation and requires a minimum of ice.

Wide mouth with close fitting flanged cover excludes dust and dirt, makes for convenience and reduces evaporation.

Extremely durable and will withstand hardest use in the field.

Sizes 1½ Gallons to 15 Gallons
AT YOUR LOCAL SUPPLY STORE

EGAN MANUFACTURING CO., EL DORADO, KANSAS

OIL & GAS WELL

TORPEDOES

Special Equipment for Trouble Shooting

All shots safely and accurately placed with the Howard Greene Line Indicator. Patentee of the Bolshevick Greene Cave Catcher.

Our Modern Equipment and Experience Is Your Guarantee of

Safety - Accuracy Satisfaction

***Dial* 8-4875**

W. C. Duncan . . . 5-7366
Gordon H. Greene . . 5-9980

HOWARD GREENE TORPEDO CO.

5501 North Eastern
Oklahoma City, Okla.

The Most Complete and Versatile Geophysics Book Ever Published!

THE ONLY BOOK THAT

Gives the fundamentals of geophysics, in non-technical language, for use by geologists, oil and mining engineers, and petroleum geologists (Part 1).

Presents the most complete, thorough and scientific treatment of all aspects of geophysics ever achieved (Part 2).

BROAD DIVISIONS OF THE BOOK

Methods of Geophysical Exploration—Measurement Procedures — Geophysical Methods in Mining—Applications of Geophysics in Engineering — Gravitation Methods — Magnetic Methods — Seismic Methods—Electrical Methods—Geophysical Well Testing—Miscellaneous Geophysical Methods.

Over 500 illustrations—1013 pages—$10

"It fulfills exactly my aim in ordering the book, namely, to have at hand in a single volume the basic theory and practice of geophysical prospecting in its various forms."
—Reverend James Kline, St. Edward's University

Send orders to

THE GULF PUBLISHING CO.

P. O. DRAWER 2608 HOUSTON, TEXAS

ft in Evangeline Land Company 3 (was No. 2), at Pine Prairie. Electrical log was to 8296 ft, total depth, and pipe set for production test.

Jefferson Davis Parish: H. M. Naylor is reported to be reworking Acadia Development 1, discovery of West Mermentau, sec 12-10s-2w. Well has been producing from 9119-25 ft, perforations have been squeezed, and hole will be deepened from 10,003 ft, old total depth.

Rapides Parish: John Alban has recorded 21 instruments covering leases on around 1400 acres in sections 6, 15, 17, 16, 18 and 21 of township 5n-5w, and in sec 28-5n-5w. Leases are for 7 years.

North Louisiana

LaSalle Parish Well Completions Decline

Completions decline in LaSalle Parish Wilcox fields; two wildcats abandoned, one new one started in "Olla Trend";

The completions list in the shallow Wilcox Fields in the "Olla Trend" was noticeably short last week, only 5 completions being reported, only 2 of which were producers. Nebo had both producers and 2 dry holes and Little Creek accounted for 2 dry holes.

Two wildcat tests in the "Olla Trend" were abandoned last week, 1 in Grant Parish and 1 in LaSalle Parish. One new location, also in this "trend" was started, in Natchitoches Parish.

New Mexico

Big Producer Extends West Eunice Field

Southwest extension for West Eunice pool biggest natural producer in Lea County in months. Additional shows recorded by Lea County wildcat, and another abandoned. Salt Lake pool has 4 wells on production.

West Eunice: Wilson Oil Co.'s State 5, C NW SE 13-21s-34e, flowed 1260 bbls oil on 24-hour gauge through casing outlet from sand at 3679-85 ft, followed by saturated lime to 3690 ft. Well later flowed rate 1320 bbls oil and 3,000,000 ft gas daily on ¼-inch choke.

Lea Wildcats: Culbertson & Irwin's Wingfield-Texaco 1, 4½ miles south Corbin pool, drilling 4590 ft, bailed free oil from saturation 4500-05 ft. Richmond Drilling Co.'s State-Shell 1, abandoned 4805 ft, having plugged back for nitro shot and acid without results in 4500-foot zone.

Eddy County Wildcat: Nay Hightower et al's Grier 1, C NW NW 31-16s-31e, running pipe to complete after flowing 173 bbls 37-gravity oil 23 hours through 2-inch casing outlet from lower sand 3108-18 ft. Passed up commercial oil well 3062-72 ft.

Lea County: Continental Oil Co. et al's Brooks 1-A-7, C SW SW 7-20s-33e, north offset to Salt Lake pool discovery, pumped and flowed 101 bbls 26-gravity oil initial, used 1000 gallons acid 3035-3110 ft, elevation 3535 ft. Harry Leonard and Van Welch's State 2, ¼-mile south discovery, pumped 2 bbls oil hourly, plugged back from water 3099-3104 ft to 3060 ft, and State 3 pumped at same rate, broken pay 3040-3100 ft. Allowable production delivered by tank trucks to The Texas New Mexico Pipe Line Co's Lynch station.

Hobbs Workover: Amerada and Skelly's State 1-E, west edge well that made 7841 bbls initial, 7 per cent water, in January, 1935, at 4162-4240 ft, logged water in deepening to 4319 ft. Hole water plugged back to 4206 ft, used 3000 gallons acid through perforations 4140-50 ft for flow 534 bbls oil and 356 bbls water 24 hours ½-in. This revived flow to permit the making up of back allowable. Shell's State 1-F, west offset this lease, drilling 1300 ft.

Protection for THRIFTY Tank Owners

"NATASCO"

CONSERVES Oil and Equipment Makes for Profit

Tank Bottoms

IF YOU are worrying—about steel replacements for those bad tank bottoms . . . **STOP!**

OLD CRUDE OIL Tank Bottoms, large and small, can be made **Leakproof** and **Corrosion Proof** with "Natasco" Plastic Tank Bottom Cement.

New bottoms last indefinitely with this **Protection** and **Seal.**

•

INSIDE STEEL SURFACES

At nominal cost, "Natasco" Insulation fully protects inside steel surfaces against Corrosion damage.

Without obligation you may have full details

WRITE WIRE TELEPHONE

TANK SEAL PRODUCTS COMPANY

P. O. Box 2412 Telephone 4-2467
TULSA, OKLAHOMA

California

Record Deep Well Fails; Ventura Test Promising

Record Kern County deep test being abandoned while a second important deep test in Midway area shows promise; Ventura County deep test shows production.

Kern County: Honolulu Oil Corporation's No. 25-P record deep well in the Buena Vista Hills field, bottomed at 14,622 ft, is to be placed on production from shallow sands at 2800-2900 ft after failure to develop deep zone production. Failure of test eliminates possibility of anticipated major deep zone area underlying this old district, successful development of which was provided for by unit development plan entered into by operators of area several years ago.

Prospects for opening a second deep zone in the Midway-Sunset field by North American Oil Consolidated's W. P. No. 1-28 as well is cored to 10,084 ft in shale showing oil. Prospects of production are considered good from interval 8875-9275 ft, however, as an estimated 95 percent of 400 ft zone cored showed oil sand.

Ventura County: Chanslor - Canfield Midway Oil Company's Hobson C-3 deep test, Sec. 17-3-24, Rincon field, bottomed at 10,515 ft has been plugged to 10,080 ft and on formation test produced 120 bbls daily rate, 25.5-gravity oil cutting 19.2 percent through a half-inch bean.

Mississippi

Warren County Wildcat Drills After Water Appears

Warren County wildcat that showed heavy oil drills deeper after water appears; five new locations in Mississippi, including 2 wildcats; core hole and geophysical activity; Tinsley Dome west edge defined.

Magnolia Petroleum's Hall 1, 467 ft south and 1360 ft west NEc NE 39-17n-4e, Warren County, wildcat that showed oil in Wilcox, later developed water and is drilling below 2660 ft. Casing cemented 2193 ft, total depth 2233 ft, bailed down closed in fluid rose 200 ft of top, after valve opened well began to flow five barrels per hour 16.8-gravity (corrected) oil. Bailing later hole sanded up, bailer stopped at 2045 ft. Water appeared and oil declined. Then drilled deeper.

Five new locations staked in Mississippi during week, 3 at Tinsley, 2 wildcats, one in Lamar County, and one in Madison County. Wildcat abandoned Lamar County.

Carter Oil drilling core hole tests at 2-mile intervals, Noxubee County, townships 15 and 16 north, range 19 east; Pure Oil core hole drilling townships 6 and 7 north, ranges 3 and 4 west, Hinds County; Phillips Petroleum, doing similar work, townships 5, 6 and 7 north, ranges 5 and 6 east; likewise Sinclair-Wyoming Oil, township 13 north, range 2 east, Yazoo County.

Seismograph units of Superior Oil and Union Producing, Walker County and Mobile County, respectively; Texas

It was 22 years ago in the Oil Weekly

Then, as now, materials were scarce and ingenuity essential to service

No, it was by no means our first Oil Weekly message to the oil industry

Chinese Philosphy

It was a philospher who pointed out that:

"The legs of the stork are long, the legs of the duck are short; you cannot make the legs of the stork short, neither can you make the legs of the duck long. Why worry?"

But Chwang Tsze was a Chinaman!

It is constant striving to make the stork's legs short and the duck's legs long that lends distinction to service--that wins for us appreciation and confidence.

To make the Oil Man's worry our worry; to make his need our accomplishment; to render the greatest good to the greatest number in spite of handicaps—

Well, it isn't according to —Chinese philosophy, but it wins friends and customers among Oil Men.

We know

Pelican Well Tool & Supply Co.

Good people to do business with

~~Vivian, La.~~ Shreveport, La.

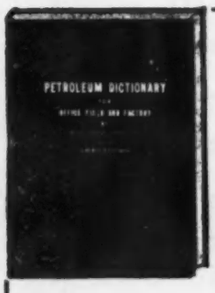
Houston, Berwick, Houma, New Iberia

MANUFACTURERS OF BETTER OIL FIELD EQUIPMENT TRADE PELCO MARK

Reg. U. S. Pat. Office

From $3 Single or Double
HOLLYWOOD Plaza Hotel
VINE AT HOLLYWOOD BLVD. NEAREST HOTEL TO RADIO AND MOVIE STUDIOS
TWO GUESTS ONE PRICE

CONVENIENT . .
ECONOMICAL . .
And the home of good food in Dallas
AIR CONDITIONED
WHITE-PLAZA HOTEL
In San Antonio and Corpus Christi, stop at White-Plaza Hotels



PETROLEUM DICTIONARY
By HOLLIS P. PORTER, A Registered Engineer
3RD REVISED EDITION
This new edition of PETROLEUM DICTIONARY has been much improved. Many changes in the vocabulary of those employed in this rapidly developing industry have made additions and enlargements of the book necessary.
This book grew out of demands for some source of definitions for terms used by the petroleum industry. Previous editions have gone into the hands of executives, engineers, students of Petroleum Engineering, manufacturers, brokers and advertising agencies. It should be in the library of every one in any way connected with, or interested in the petroleum industry.
263 pages, 3541 words and terms defined, Size 6x9, Price postpaid $3.00
Send Check to
THE GULF PUBLISHING COMPANY
P. O. DRAWER 2608 HOUSTON, TEXAS

Company gravimeter unit working Coffee, Dale, and Houston counties, Alabama, and Holmes and Walton counties, Florida. Humble has gravimeter unit, Jackson County, Florida, and magnetometers Walton, Fort Meyers, Brevard, Indian River and St. Lucie counties, Florida. Texas Company has gravimeter units Marianna County, Florida, and Houston County, Alabama.

West edge Tinsley field, Yazoo County, was defined by Hassie Hunt's McMurtray 3, NE SW 26-10n-3w, abandoned 4702 ft; elevation 321 ft; top chalk 4581 ft, no Woodruff; top Eutaw, 4680 ft.

Nebraska

Second Anniversary of Oil Discovery Celebrated

State celebrates second anniversary of oil discovery in Richardson County; core recovers saturation in New Barada pool; year-old well finally completed; to deepen wildcat.

Richardson County: Nebraska Saturday celebrated second anniversary of discovery of oil in state at Pawnee Royalty Co.'s Boice 1, C NE NE 18-1n-16e, which opened the Falls City pool. Since holdings of the company were sold to Ohio Oil Co., 55 oil wells have been drilled. County has had 33 dry holes since play started.

Barada Pool: Skelly's Roesch 1, C S½ NW 36-3n-16e, Richardson County, cored 2410-30 ft in Hunton lime topped at 2335 ft. Recovered full section saturated lime, casing set for test; operator's Roesch 3, C W½ SW NW Sec 36, drlg 1300 ft; operator's Steinbrink 1, C W½ NW NW Sec 36, derrick.

Falls City Pool: Campbell et al's Wamsley 1, 8-1n-16e, started Nov. 14, 1940, finally completed for 15 bbls oil daily on pump, originally drilled to 2446 ft, plugged back 2380 ft.

Lancaster County: August Kreger's Roe 1, NE SE SW 5-7n-7e, originally announced as abandoned at 1779 ft in Viola lime, was to resume drilling.

Johnson County: Anderson et al's Eiler 1, 29-6n-10e, 5 mi north Tecumseh, running 8-in at 400 ft.

Kentucky

Union County Shallow Sand Produces Oil

Most important development to come out of west Kentucky for several months was a new shallow sand discovery well in Union County, 2 miles south of Morganfield, Sun Oil Company, Kentucky Natural Gas Company and Basin Drilling Company's Reyburn 2, C E½ SW 20-0-18.

Well is 7 miles from nearest production, and swabbed initially 76 bbls of oil in 16 hours from Pennsylvanian sand, tentatively identified as Mansfield, at 1330-42 ft. It is a twin well to same operators' Reyburn, dry hole recently abandoned through McClosky. Same operators, meanwhile, located McKinney 1, south offset to Reyburn 2.

UNITED STATES WELL COMPLETIONS

Arkansas

Company, Well and Location	Init. Prod. Bbls.	Depth
Columbia County (Atlanta)—		
Tidewater Associated Oil Co. et al, Beene 3, 15-18-19	500	8200
Columbia County (Stephens)—		
R. H. Crow, Smart B-1, 13-15-20	170	3405
Miller County (Fouke)—		
Carter Oil Co., Sturgis B-2, 2-17-27	150	3750
Union County (El Dorado)—		
Sam Sebersky et al, Wells 4, 19-18-15	*	2800
Union County (Urbana)—		
Marine Oil Co., Union Sawmill A-6, 3-18-13	255	3200
Tide Water Associated Oil Co. et al, Simmons 7, 10-18-13	200	3010
Union County (East Schuler)—		
Atlantic Ref. Co., Briggs 1, 13-18-17	380	5780

California

Company, Well and Location	Init. Prod. Bbls.	Depth
Fresno County (Raisin City Area)—		
Seaboard, STU 88-13	355	5139
S. B. Herndon, Bottoms 1	*	5571
Kern County (Coles Levee)—		
Richfield, KCL-B 27-27	2425	9195
KCL 1-G-28	¶ 11	5250
Kern County (Kern River)—		
East Puente Oil Co., No. 3	No Est.	1029
Kern County (Midway-Sunset)—		
Standard, No. 105	111	3050
Kern County (Mount Poso)—		
Shell, Security 32	148	2040
Security 33	226	1920
Kern County (Richgrove Area)—		
Shell, Bell 52-21	*	6339
Kern County (Round Mountain)—		
Crestmont Oil Co., Staley 8	200	1610
J. Pankratz, JPR-Coffee 1	*	2065
Los Angeles County (Puente Hills)—		
Continental, Turnbull Comm. 1	104	3447
Los Angeles County (Whittier-LaHabra Area)—		
Fullerton Oil Co., LaHabra 10	No Test	2768
Los Angeles County (Inglewood)—		
R. R. Bush Oil Co., Smith 1	*	8670
Hogan Pet. Co., Machado 3-A	No Est.	8305
Standard, Vickers 2-12	2226	8300
Los Angeles County (Torrance)—		
Jergins Oil Co., Dominguez 1-34	55	3657
Los Angeles County (Wilmington)—		
De Marsh Oil Co., Harbor 1	80	3120
MAK Pet. Corp., No. 6	260	3750
Wilforth Oil Corp., No. 3	118	3700

*Failures; †Junked; ¶Million cu. ft. gas.

Company, Well and Location	Init. Prod. Bbls.	Depth
Madera County (Chowchilla Area)—		
Shell, Chowchilla Farms 74-9	*	7096
Orange County (Huntington Beach)—		
Signal O&G Co., Signal Bolsa 31	525	3411
Santa Barbara County (Camulos Area)—		
Western Gulf, Reubel 1	*	7096
Santa Barbara County (Elwood)—		
Barnsdall, Permit No. 88-11	¶ 10	6391
Santa Barbara County (Santa Maria Valley)—		
Pacific Western Oil Co., Hobbs 12	325	4706
Union, Security 3	No Est.	4641
Solano County (Fairfield Area)—		
Standard, Suisun Comm. 1	*	9062
Solano County (Rumsey Hills Area)—		
Standard Tippets 1-1	*	2640
Ventura County (San Miguelito)—		
Continental, Hobson 5	105	6237
Ventura County (Ventura Avenue)—		
Shell, Edison 37	1208	9473
Taylor, 109	234	7394
OLD WELLS DEEPENED		
Los Angeles County (Rosecrans-Athens)—		
Universal Cons. Oil Co., Trust 2 (otd 7300)	250	7183
Los Angeles County (Torrance)—		
General, Poggi 3 (otd 3575)	14	3825
Los Angeles County (Wilmington)—		
VRG Wilbur, Kreiger 2 (otd 2884)	140	3677

Illinois

Company, Well and Location	Init. Prod. Bbls.	Depth
Christian County—		
Marsch, Krall 1, n½ sw nw 9-13n-1e	*	1225
Clay County—		
Pure, Bissey 3, e½ nw ne 18-2n8e	21	3100
Gulf, Reed 1, nw ne se 26-4n-7e	173	2326
Clinton County—		
Lillie & Blalock et al, Kuhn 1, ne se ne 22-1n-1w	*	1146
Coles County—		
Haley, Christian 2, nw sw sw 19-11n-14w	¶.015	304
William Thomas, Taylor 2, sw sw ne 33-14n-10e	*	245
Fayette County—		
Homer Luttrell, Ford 1, ne ne nw 31-5n-3e	41	1891
Carter, Beck 3-D, c se sw 21-8n-3e	250	3033
Logue 4-D, c ne sw 22-8n-3e	250	3041
Tucker 5-D, c sw ne 28-8n-3e	250	3081
McClain 3, ne se se 32-8n-3e	78	1587
Taylor 2, se sw sw 33-8n-3e	168	1586
Franklin County—		
J. H. Gilliam, Smith 1, sw se ne 23-6s-2e	175	2121
Wegener, Hammond 3, e½ ne ne 26-6s-2e	250	2116
Jim Menhall, Mosely 3, se ne ne 26-6s-2e	210	2126
Adkins, Lager 5, se se ne 35-6s-2e	137	2165
Shell, CW&F Coal Co. 16, se sw nw 36-6s-2e	286	2147
Dayl, George D. Collins 6, 3 ½ ne sw 34-7s-2e	*	2830
Gallatin County—		
Hiawatha Oil Co., Rowe 1, nw nw nw 20-7s-11e	52	2459
Carter, Carnahan 2, nw nw sw 4-8s-8e	86	1918
Sinclair, Schmitt 1, se se sw 21-8s-9e	*	2975
Delta Drlg. Co., Minier 1, ne ne nw 28-8s-9e	*	2993
Hamilton County—		
Reward Oil, Anderson 2, se sw sw 12-6s-5e	308	3147
Reward Oil & Texas, Smith-Knight 1, ne nw ne 13-6s-5e	525	3320
Texas, Edwards 5, ne se nw 11-6s-6e	142	3057
Bond 2, w½ nw ne 34-6s-6e	*	3120
Shell, Dailey 4, se se ne 12-6s-6e	120	3039
Beagle 6, se sw se 6-6s-7e	97	2990
Politis et al, Mayberry 1, ne nw ne 13-6s-6e	225	3110
Jasper County—		
Great Lakes Drlg. Co., Douthit 1, e½ se nw 16-5n-8e	*	3144
Texas Co., Hines "A" 1, se sw sw 4-5n-10e	70	2893
Jourdan 1, ne ne nw 8-6n-10e	1250	2812
Pure, Trainor 2, w½ ne se 8-5n-10e	99	2815
McCormick 3, c w½ se se 19-5n-10e	*	2844
Bergbower "A" 2, nw sw se 5-6n-10e	114	2800
Jefferson County—		
Homer Lutrell et al, Mooney 1, sw nw sw 15-1s-2e	*	2207
Texas, Wood 2, sw se sw 36-2s-1e	50	2006
Trout 3, se sw nw 36-2s-1e	769	1994
Magnolia, Oslager 5, ne sw nw 1-3s-1e	360	1970
Walker et al 1, ne nw se 2-3s-1e	216	1960
McBride, Inc., Hoppa 7, se se ne 2-3s-1e	480	1940
Hoppa 8, sw se ne 2-3s-1e	460	1945
Lawrence County—		
New Deal Oil Co., Clark 1, se se sw 2-2n-12w	19	767
Richland County—		
Sinclair-Wyoming, Clodfelter 5, n½ se sw 29-2n-14w	1310	3120
Ohio, Walden 1, s½ nw sw 20-2n-14w	*	3203

[*Continued on next page*]

Summary of Drilling Operations in the United States, Week Ended November 1, 1941

	WELLS COMPLETED								[1]PERMITS FOR NEW WELLS				
		New Wells Drilled for Oil and Gas											
	Completions	Oil Wells	Gas Wells	Failures	[3]Miscellaneous	Initial Production	Total 1941	Total this Date 1940	This Week	Total this Month	Total 1941	Total this Date 1940	Year Total 1940
Alabama	1	.....	.....	1	.....	.....	5	9	.....	.....	.....	.....	.....
Arkansas	7	6	.....	1	.....	1,655	162	159	2	20	157	129	153
California	34	24	2	8	.....	9,109	996	947	27	116	1,000	961	1,042
Colorado	.....	.....	.....	.....	.....	.....	15	7	.....	.....	.....	.....	.....
Florida	.....	.....	.....	.....	.....	.....	1	2	.....	.....	.....	.....	.....
Georgia	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Illinois	95	71	1	21	2	29,672	3,340	3,407	95	501	4,042	3,888	4,532
Indiana	14	3	2	7	2	268	454	429	13	70	[2]229	.....	.....
Iowa	1	.....	.....	1	.....	.....	6	.....	.....	.....	.....	.....	.....
Kansas	43	28	.....	13	2	22,258	1,913	1,699	52	260	1,997	1,746	2,048
Kentucky	6	.....	.....	6	.....	.....	273	304	7	45	[2]157	.....	.....
Louisiana	25	12	3	10	.....	2,283	1,306	1,442	36	181	1,492	1,402	1,658
Michigan	15	13	.....	2	.....	13,717	708	1,038	25	135	790	979	1,093
Mississippi	9	6	.....	3	.....	3,897	184	157	.....	.....	.....	.....	.....
[1]Missouri	2	.....	.....	2	.....	.....	64	26	.....	.....	9	22	26
Montana	.....	.....	.....	.....	.....	.....	182	167	.....	.....	.....	.....	.....
[1]Nebraska	2	1	.....	.....	1	458	78	27	.....	.....	6	88	46	69
New Mexico	8	7	.....	1	.....	1,320	325	555	13	43	350	495	559
New York	29	15	.....	.....	14	119	848	849	.....	.....	.....	.....	.....
Ohio	35	8	17	9	1	38	1,484	876	.....	.....	.....	.....	.....
Oklahoma	37	16	2	11	8	10,092	1,862	1,799	56	284	1,990	1,555	1,888
Pennsylvania	67	42	16	2	7	106	3,296	3,049	.....	.....	.....	.....	.....
South Dakota	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Tennessee	.....	.....	.....	.....	.....	.....	16	11	.....	.....	.....	.....	.....
Texas	256	169	7	77	3	86,420	8,834	8,468	237	1,129	10,317	9,622	11,170
Utah	.....	.....	.....	.....	.....	.....	3	3	.....	.....	.....	.....	.....
West Virginia	24	2	12	8	2	11	621	509	.....	.....	163	677	782
Wyoming	.....	.....	.....	.....	.....	.....	114	136	.....	.....	.....	1	1
Total this week	710	423	62	183	42	181,423	27,091	26,076	563	2,790	22,781	21,523	25,021
Total last week	673	411	70	156	36	179,606	26,381	25,490	615	2,227	22,218	20,901	25,021
Total this year	27,091	16,498	2,103	5,940	2,550	7,521,192	.....	.....	.....	.....	.....	.....	.....

[1] This tabulation includes those states where weekly data are available; figures for Missouri date from August 10, 1940; Nebraska from August 3, 1940.
[2] No data available before June 21, 1941.
[3] Includes old wells deepened, water-intake, gas input, and salt water disposal wells.

United States Well Completions—*Continued*

ILLINOIS—Continued

Case-Pomeroy & Co., Bunn 1, c s½ se sw 34-3n-14w ... 80 3212
Richey et al, Richey 1, e½ se sw 32-4n-14w ... • 3073
Pure, Wachtel "B" 1, c n½ nw nw 32-5n-10e ... 450 2875
Saline County—
Potter, Sutton 1, se se sw 28-8s-7e.. • 2227
St. Clair County—
Geo. A. Morris, Rasp 1-A, nw nw sw 32-2n-7w ... • 2075
Wabash County—
Wm. Bailer, Friend 7, nw ne sw 21-1s-12w ... 150 1997
Friend 8, nw ne sw 21-1s-12w.... 50 2000
Bailor et al, Morgan 1, ne se nw 21-1s-12w ... 15 1485
Seaboard et al, Guisewise 1, nw ne nw 21-1s-12w ... 107 1997½
W. W. Gray, Fee "A" 16, nw se nw 14-3s-14w ... 125 2532
Riddle, Toops 1, sw nw sw 17-3s-14w ... • 3169
J. S. Young, Barney 2, se se nw 1-1n-12w ... 40 2053
Snowden & McSweeney, Cozine 2, sw nw ne 16-1n-12w ... 124 2292
Washington County—
Whittaker et al, Garnholz 1, sw se sw 24-1s-2w ... • 1566
Shell, Sharkowski 1, nw sw sw 14-3s-3w ... salt water disp. 955
Wayne County—
Olson Drlg. Co., Elkelberry 1, w½ se ne 1-1s-6e ... 7 3265
Oglesby-Hopkins 1, w½ ne nw 3-1s-6e ... 956 3218
Watkins & Weinert, Brook 1, e½ sw nw 36-1s-7e ... 156 3356
Holshuk & Murphy, Sprague 1, se ne se 4-2s-7e ... • 3110
Texas, Brimberry 2, s½ nw se 22-1n-6e ... 1350 3205
Greathouse 6, n½ nw ne 27-1n-6e. 1560 3116
Shehorn 1, s½ nw nw 27-1n-6e.. 150 3160
Shcultz 3, s½ ne ne 28-1n-6e.... 774 3129
R. O. Smith, Greathouse 1, n½ sw se 22-1n-6e ... 3443 3182
Wiser Oil, Matchett 4, w½ sw sw 23-1n-6e ... 1390 3202
Lowe 3, n½ nw se 33-1n-6e.... 1200 3218
Dickey "B" 2, n½ sw se 34-1n-6e 229 3247
Dickey "B" 3, s½ se sw 34-1n-6e 187 3254
Ohio, Leathers 1, s½ se sw 26-1n-6e 528 3157
Wells 1, n½ nw ne 35-1n-6e.... 2068 3150
Gulf, Shehorn 1, s½ se sw 28-1n-6e. 80 3260
Shehorn 2, n½ se sw 28-1n-6e.... 55 3259
United Prod. Co., Hale 6, s½ se nw 33-1n-6e ... • 3284
Hale 5, n½ se nw 33-1n-6e.... 175 3300
Shell, Wilson 1, s½ se ne 33-1n-6e. 3389 3206
Pure, Garrison "A" 1, s½ ne ne 1-1n-7e ... 207 3053
Olrecht "B" 1, c n½ nw nw 22-2n-8e ... 35 3055
White County—
Longhorn, Helm 20, se nw se 22-3s-14w ... 100 2173
First Nat'l Pet. Trs., Hon 7, nw ne se 32-3s-14w ... 35 2772
Karch "A" 4, ne sw ne 24-6s-10e. 160 2060
Mabee Drlg. Co., Hon "C" 2, sw sw ne 9-4s-14w ... 25 2656
Washburn, Dennis 1, ne nw nw 20-4s-14w ... 34 3008
Sun & Ellis, Jacobs "B" 5, ne ne se 29-4s-14w ... 62 2751
Papoose Oil Co., Driscoll 1, w½ sw se 18-5s-8e ... • 3584
Sinclair-Ohio, Randolph 16, se se sw 12-6s-9e ... 77 2285
Pure-Carter, Consol. 1, c nw nw nw 17-6s-9e ... 174 2827
Cherry-Kidd et al, Karch 6, ne nw se 13-6s-10e ... 230 2015
Carter Oil, Carroll 1, se sw nw 11-7s-8e ... • 2940
N. V. Duncan et al, Blair 1, se se ne 20-6s-10e ... • 2940

OLD WELL DEEPENED

Gallatin County—
Sinclair, Boetticher 3, nw ne sw 19-7s-11e (otd 2778) ... 90 2837

Indiana

Gibson County—
Princeton Mining Co., Smith 2, ne ne se 21-1s-12w ... • 2340
Continental Oil, Bozeman Land Co. 50, sw sw sw 23-3s-14w ... 90 2160
Brians & Wheelock, Kleiderer 3, se sw se 28-3s-14w ... 45 2176
Kleiderer 5, sw se se 28-3s-14w.. 133 2798
Harrison County—
A. E. Weening, Miller Est. 1, se sw sw 5-2s-4e ... • 925
Harrison Co. Develop., Eckart 1, nw c se 7-4s-4e ... ¶.025 818
Knox County—
H. H. Sprowles, Smith 1, e½ nw se 14-4n-10w ... • 934
Madison County—
Arthur Laws, McAllister 1, w½ ne se 25-18n-7e ... ¶.025 913
A. W. Modert, Hughes 1, ne nw sw 10-21n-8e ... • 1025
Spencer County—
I. A. Polhamus, Polhamus 3, se nw ne 11-6s-4w ... • 730
J. B. Miller, Dooley 1, nw ne nw 19-7s-7w ... • 1090
White County—
National Pet. Co., Brown 1, nw ne nw 16-28n-4w ... • 990

OLD WELLS DEEPENED

Sullivan County—
Reynolds, Poe 1, ne ne sw 3-8n-10w (otd 1477) ... • 1480
Drake et al, Carry 1, c ne nw 11-9n-8w (otd 951) ... • 2004

Iowa

Montgomery County—
Ohio, Peterson 1, c se se 5-72n-38w. • 2758

Kansas

Barton County—
Shell, Batt "B" 4, nw ne se 2-16s-14w ... 1546 3338
Texas Co., Zecha 1, c e½ se se 12-20s-12w ... 240 3352
Cities Service, Hogan 4, c e½ ne nw 11-17s-11w ... • 3430
Magnolia, Mueller 8, c n½ se ne 1-18s-11w ... 81 3261
Virginia Drlg., Hertner "B" 1, c n½ nw se 17-20s-11w ... 248 3311
Hallow Drlg., Kowalsky 7, se sw ne 18-20s-11w ... 348 3310
Wakefield et al, Magill 1, c s½ ne ne 18-20s-14w ... • 3718
Butler County—
Cities Service, Wilson 204, sw se ne 8-25s-5e ... 162 2034
Wilson 205, se ne sw 8-25s-5e.... 201 1971
Feltan 27, sw ne sw 10-28s-4e... 14 2086
Wallace 20, ne se nw 11-28s-4e.. 20 2078
Varner 35, ne se sw ne 17-29s-4e 25 2144
Blakeslee, Long 1, c e½ ne nw 17-28s-4e ... 50 2464
Elk County—
Frank Oister, Stewart 1, ne nw se 24-28s-11e ... • 1350
Ellis County—
Dickey Oil, Carmichael "D" 1, c s½ sw sw 8-11s-17w ... 3000 3375
J. J. Hall, Oswald "D" 1, nw se nw 11-12s-16w ... 1350 3161
Graham County—
Harber Drlg. et al, Wells 1, c e½ ne sw 18-7s-24w ... • 4395
Cities Service, Teall 1, nw nw se 27-9s-21w ... • 3955
Greenwood County—
Phillips Pet. DeMallorie-Souder 85, ne se nw nw 11-22s-10e ... input 2212
Jackman & Jackman, Jones Sisters 2, 15 ft n of c nw ne 6-22s-12e.. • 1958
Dunn et al, Keller 5, ne se sw 22-26s-13e ... 20 1481
Jack Ray et al, Mitchell 1, sw nw ne 29-27s-12e ... • 1877
Jefferson County—
Ed Jackson et al, Schroeder-Haas 1, c nw se 29-9s-20e ... • 1551
Marion County—
Veeder Supply, Venke 1, c w½ ne nw 35-17s-4e ... • 2940
McPherson County—
Westgate et al, Roberts 1, 24 ft e of ne ne se 22-20s-3w ... • 3636
Continental et al, Graber 12, 220 ft s of c s½ nw 32-21s-1w ... 339 3300
Pawnee County—
British American, Smith 1, c s ½ nw se 12-20s-16w ... 402 3819
Pratt County—
Skelly, Steffen "C" 2, c n ½ sw ne 35-27s-11w (PB 3631) ... 3000 3710
Miller 5, c n ½ sw nw 36-27s-11w (PB 3495) ... 243 3720
Reno County—
Republic Nat., Yust 1, ne se nw 21-23s-10w ... • 3808
Dines, Hunter 3, c w½ ne nw 18-24s-10w ... 3000 3799
Rice County—
Aylward Prod., Reach 1, 22-18s-9w 535 3262
Russell County—
Texas Co., Borell 2, c s ½ sw se 32-14s-12w ... 162 3217
Liggett et al, Stewart 2, c w½ se se 17-11s-15w (PB 3250) ... 58 3383
Skelly, Boxberger "C" 2, c e ½ se se 12-14s-15w (pb 3058) ... 338 3280
Transwestern, Polcyn 5, c n½ sw nw 14-14s-15w ... 2651 3212
Tom Palmer, Neidenthal 2A, c e ½ sw se 23-14s-15w ... Salt Wtr. Disp. 782
Neidenthal 5, c n½ nw se 23-14s-15w ... 243 3170
Cities Service, Eichman "A" 5, c e½ nw se 12-15s-14w ... 607 3328
Stafford County—
Deep Rock, Henry 2, c w½ sw sw 3-24s-11w ... 3000 3772
J. J. Lynn, Nagel 1, c w½ se sw 3-24s-15w ... • 3844
F. C. Hall, Mather 1, c w½ sw nw 7-25s-12w ... • 4173
Sumner County—
W. W. Drlg., Latta "B" 1, c n½ sw nw 9-30s-2w (PB 3212) ... 375 3216

Kentucky

Daviess County—
Randall et al, Westerfield 7, 17-N-29 • 1745
Henderson County—
Schneider & Gwin, Pugh 1, 25-O-25 • 745
Ohio County—
Wilbur Wilkins, Mosely 4, 25-N-31. • 1087
Mosely 3, 25-N-31 ... • 950
Batten & Vickers, Huff 1, 12-N-34.. • 274
Union Conuty—
Harry Smith et al, Waller 1, 6-N-21 • 732

Louisiana Gulf Coast

Acadia Parish (Ritchie)—
Bering Oil Co., Frank Ruppert 1... • 3511
Cameron Parish (West Hackberry)—
Stanolind, State 60 ... 405 9434
Jefferson Parish (Westwego)—
Stanolind, Weigand Co. 1 ... 59 9218
Jeff Davis Parish (Welch)—
Union Sulphur, Shield-Arcenaux 2. 145 7529
Plaquemines Parish (Lake Hermitage)—
Gulf, Lafourche Basin Levee 13.... • 8078
Plaquemines Parish (Potash)—
Humble, Orleans Levee Board 54... 583 8477
St. Martin Parish (Anse la Butte)—
Stanolind, Adam Hebert 1 ... • 7292
Rycade 4-B ... 33 6533
Melancon 1 ... • 4129
Terrebonne Parish (Gibson)—
Shell & Barnsdall, Realty Operators 1 ... ¶ 4400
Vermilion Parish (Erath)—
Texas Co., Henry 1-B ... • 12005

North Louisiana

Bossier Parish (Bellevue)—
Premier Investment Co., Wyche 64, 14-19n-11w ... 18 405
Caddo Parish (Pine Island)—
Hawkins et al, Atkins 1, 31-21n-15w ... 35 1580
S. Reele, Langford-Herndon 1, 22-21n-15w ... 50 1610
Stanolind O&G Co., Dillon 143, 13-21n-15w ... 550 1560
Texas Co., Mabry 13, 16-21n-15w.. 120 1675
Grant Parish (Wildcat)—
H. L. Hunt, Goodpine F-5, 22-8n-1w • 6000
LaSalle Parish (Wildcat)—
Carter Oil Co., Tensas-Delta E-1, 5-5n-4e ... • 6095
LaSalle Parish (Little Creek)—
H. L. Hunt, Goodpine F-101, 19-9n-2e ... • 3240
LaSalle Parish (Nebo)—
H. L. Hunt, Goodpine F-65, 9-7n-3e 185 4350
Goodpine F-66, 16-7n-3e.... • 4220
Berkshire Oil Co., Ward 2, 40-7n-3e 100 4050
Patrick & Terrell, Jones 1, 40-7n-3e • 4240
Ouachita Parish (Monroe)—
A. S. Huffman, Interstate Nat. Gas Co. 1, 23-19n-3e ... ¶2 2185
Union Parish (Monroe)—
Interstate Nat. Gas Co., Fee 113, 24-20n-3e ... ¶3½ 2180

Michigan

Arenac County—
W. E. Ross's Mutch 1, se nw se 17-19n-4e ... 1 1528
Basin Oil Co.'s Porter 1, nw se se 2-14n-4e ... 30 2737
Clare County—
Sun Oil Co.'s Hamer 2, ne se nw 29-20n-6w ... 110 3803
Gladwin County—
Sun Oil Co.'s Keller 1, c e½ ne ne 35-17n-2w ... 115 3889
Whitehill & Drury's Yeager 3, nw nw nw 36-17n-2w ... • 4977
Isabella County—
L. & S. Drilling Co.'s Kobel 1, ne nw nw 29-14n-5w ... ½ 1285
White & Rowmor's Swan 1, c e½ ne ne 4-15n-3w ... • 3822
Osceola County—
Pure Oil Co.'s Small 2, c n½ sw ne 29-18n-10w ... 550 3615
Small 3, c n½ nw ne 29-18n-10w. 2400 3562
Ohio Oil Co.'s Stedman 3, c n½ ne ne 30-18n-10w ... 6100 3612
Don Rayburn's Gabel B1, c n½ nw sw 31-18n-10w ... 290 3636
Gulf Ref. Co.'s Jewett B1, c n½ se se 31-18n-10w ... 490 3574
Roscommon County—
Mogul Oil Co.'s State 1, c s½ ne ne 34-21n-3w ... 3600 3435
Van Buren County—
Fortney & Broughton's Reed 2, sw se se 2-1s-14w ... 20 1294
H. C. William's Gelden 1, nw nw nw 12-1s-14w ... 10 1288

United States Well Completions—*Continued*

Missouri

Caldwell County—
J. C. Hart et al, Bridgewater 1, c ne ne 28-66n-28w ..... • 725
Shelby County—
McAlpine et al, McKellip 1, se se se 35-59n-11w ..... • 800

Mississippi

Lamar County (Wildcat)—
Freeport Sulphur Co., Tatum 7, 2-9n-17e ..... • 2095
Yazoo County (Tinsley Dome)—
Hassie Hunt, McMurtray 3, 26-10n-3w ..... • 4702
Stutts A-3, 30-10n-2w 1008 5000
E. C. Johnston & Texas Co., Hennis 3, 36-10n-3w ..... • 4895
Carl Jones, Walker 2, 2-9n-3w 672 4938
Magnolia Pet. Co., Payne 2, 36-10n-3w 325 4816
Midstates Oil Corp., Cummings 8, 31-10n-2w 476 5012
Roeser & Pendleton, Inc., W. P. Stevens 2, 2-9n-3w 648 4999
Snowden & McSweeney Co., Ben Hanley 3, 35-10n-3w 768 4927

Nebraska

Richardson County—
Harper, Siebbernson 6, se ne nw 20-1n-16e 200 2310

OLD WELL DEEPENED

Richardson County—
Ohio, Sandrock 7, c n½ nw ne sw 20-1n-16e (OTD 2236) 258 2292

New Mexico

Eddy County—
Brewer Drl. Co., Flint 1, sec sw 23-18s-26e ..... • 1179
Keyes-Atwood et al, Keyes 1-A, ne se sw 15-20s-30e 240 1515
Paton Bros. et al, Russell 5-A, nw sw se 35-17s-27e 265 461
Suppes & Suppes, Miller 3, c nw ne 6-18s-29e 24 2723
Lea County (Maljamar)—
Barney Cockburn et al, Miller 9-A, c se nw 26-17s-32e 360 4075
W. J. Rutledge et al, Mitchell 2-B, c se ne 17-17s-32e 85 3660
Lea County (Salt Lake)—
Continental et al, Brooks 1-A, c sw sw 7-20s-33e 101 3110
San Juan County—
Carroll & Cornell, Santa Fe 5, nec 13-29n-12w 245 990

New York

Allegany County—
Messer Oil Corp., Vosburg farm, Bolivar 9 1389
B. & B. Oil Co., Curtis farm, Bolivar 10 1418
Producers Oil Co., "S", Keller-Scott farm, Wirt 9 1062
Sawyer & Williams, Shevalier farm, Bolivar 8 1354
Ebenezer Oil Co., Emerson farm, Scio 7 1068
Helen Randall, Reid farm, Alma .. 11 1536
Albert Oil Co., Vance farm, Alma .. 9 1390
Ira Witter farm, Alma 9 1230
McEnroe & Brown, Bellamy farm, Alma 8 1372
E. B. Sage et al, Conklin farm, Bolivar 6 1411
Pioneer Oil Co., Wood farm, Wellsville 5 1388
L. H. Richardson et al, Wright farm, Scio 5 833
Sloan & Zook, Schcam farm, Bolivar 7 1389
New York Oil Co., Brown farm, Bolivar 8 1420
Forest Oil Co., Lester farm, Wirt .. 8 1267
Water Intake Wells—
R. B. Moore et al, Curtis farm, Bolivar 1338
Walter McEnroe, Hoover farm, Bolivar 1449
V. V. V. Franchot, Murphy farm, Bolivar 1448
Ebenezer Oil Co., Vincent farm, Scio 1056
Prattsburg Oil Co., Robinson farm, Scio 1260
Curt Oil Co., Williams farm, Alma .. 1439
George Oil Co., Scott farm, Alma .. 1381
Albert Oil Co., Coats farm, Scio .. 1254
Bradley Prod. Corp., Fitz-Carroll farm, Bolivar 1432
L. H. Thornton et al, Fassett farm, Willing 1156
Cousins Oil Co., Roeske farm, Wellsville 1378
L. H. Richardson et al, Alger farm, Scio 887
H. W. Patterson et al, Browning farm, Scio 734
Browning farm, Scio 712

Ohio

Ashland County—
Gold Crown Oil Co., Easely 2 ....¶0.02 740
Stewart et al, McCrory 2 .....¶ 0.6 2748
Athens County—
Ross et al, Ackley 10 ..... • 400
C. W. Nuzum, Poston 2 .....¶0.08 1706
McBill Oil Co., Hampton 1 .....¶0.06 1589
Belmont County—
Barneville Dev. Co., Robinson 1 ... • 1807
Coshocton County—
Preston Oil, McClain 3 ..... 17 3054
Harrison County—
Frank Stranges, Barcley 1 ..... • 4329
Hocking County—
Ohio Fuel, Sunday Creek Coal Co. 7007 .....¶0.69 1136
Griffin Prod. Co., Nutter 2 ..... • 2909
Knox County—
Knox Exploration Co. Yearous 1 .. 1 2940
Ohio Fuel, Dawson 1 .....¶1.25 3015
Licking County—
Preston Oil, Cornwell 3 ..... 10 756
G. S. Lacknett, Weakley 2 ..... • 860
McClay Bros., Claggett 4 .....¶0.75 2985
Medina County—
Thornton Prod. Co., Stentz F34 ... 1 404
Mentz F25 ..... 1 419
Meigs County—
Ohio Fuel, Riggs 1 .....¶0.06 854
Downie et al, Ward 2 .....¶0.24 817
Monroe County—
E. M. Shields, Newton 1 ..... • 4550
Morgan County—
Bachelor et al, Bachelor 1 .....¶0.07 585
Williams Bros. Ungemach 1 .....¶0.05 955
Muskingum County—
Gas. Prod. Co., Weaver 1 .....¶0.66 4017
Pure Oil, Dickson 1 .....¶ 1.1 3993
Ohio Fuel, Olden 1 .....¶0.97 4246
Noble County—
John Cisler, Steen 6 ..... ½ 1694
W. D. Lachley, Fee 1 .....¶0.02 1440
Perry County—
C. Z. Ruth, Northwest Coal Co. 20. 5 1087
Hermey Bros., Henny 24 ..... • 1048
Washington County—
Henry Payne et al, Holshu 1 ..... • 928
Joe Hall, Hall 68 ..... 2 421
Wayne County—
Kemrow Co., Wharton 1 .....¶1.15 3219
J. L. Skinner, Zuercher 1 .....¶0.23 860
Wyandot County—
Cy Coyle, Reber 1 ..... • 1625

OLD WELL DRILLED DEEPER

Washington County—
Ohio Fuel, Tresch 2 .....¶0.23 1497

Oklahoma

Caddo County—
Texas Co., Smith 4, ne nw nw 2-5n-12w 6960 3763
Carter County—
Mid States, Rexroat 15, ne se ne sw 10-4s-2w (pb 1814) ..... • 2100
F. W. Merrick, Stroman 9, se ne se 22-4s-2w 40 3035
L. Sikes, Eaves 8, ne se nw 5-2s-2w. ¶5.5 1622
Creek County—
Marshall Strozier, House 4, 75 ft w of nw sw se 22-17n-11e 50 2502
C. W. Briggs, Coonrod 1, ne nw ne 27-18n-9e (pb 2005) 28 2016
Grady County—
Little Nick Oil, Farwell 1, c ne sw 26-5n-8w .....¶123 5265
Jackson County—
T. I. Sanders, Gamble 1, se se se 12-3n-21w ..... • 3002
Jefferson County—
H. F. Gibson, Noah 2, n 10 ft s of c ne ne 25-3s-5w ..... • 270
Long-Yingling-Locke, Seay 32, se sw sw ne 3-7s-5w 30 1280
Kiowa County—
H. J. Sherman, Watkins 7, se nw nw 20-7n-17w 201 1150
W. C. McBride, Rhyne 1, nw nw se 29-7n-17w ..... • 1265
Lincoln County—
K. S. White et al, Summers 1, Davenport Area, 5-14n-5e ..... • 3545
Mid-Continent, Evans Land Co. 1, sw se nw 31-14n-6e (pb 4659) 122 4844
Okfuskee County—
W. A. Smith, Fletcher 1, se nw se 24-10n-11e 10 2031
Deep Rock, Turner 1, se se nw 7-11n-8e (pb 3722) 96 3729
Titus, Sands 7, sw nw se 26-11n-8e • 4121
Devonian, Phillips 5, nw nw sw 26-12n-8e 22 3700
Beal & Levieux, Allen 1, ne sw nw 14-3n-9e ..... • 3809
Oklahoma County—
Cities Service, Lawrance Place 7, nw sw sw nw 15-11n-3w 251 6521
Phillips, Vivia 1, nw sw se nw 34-12n-3w 495 6562
Pottawatomie County—
Crisso, Tiffen 1, sw se ne 27-8n-4e 100 3896
Crosbie & Atlantic, State 5, se sw ne 16-9n-4e 115 4600
Hall & Jordan, Whitehead 3, ne se sw 36-10n-3e ..... • 330
Roodhouse et al, Blackborn 1, sw sw nw 3-10n-4e ..... • 4480
Seminole County—
Eason Oil, Van Buskirk 2, sw se nw 7-6n-8e 50 1164
C. E. Davis, Varnum 1, nw se se 16-8n-8e (pb 3050) ..... • 4091
Winona, Kay Estate 1, sw ne nw 30-10n-8e ..... • 3580
Tulsa County—
Kenner O&G, Derina 6, nw ne nw 13-21n-12e 4 1467
Bird Creek, Blackwood 19, se sw ne se 31-22s-13e .....Input 1267

OLD WELLS DEEPENED

Carter County—
W. H. Smith, Ward 10, 110 ft n of ne ne ne 19-4s-2w (otd 2048) 395 2285
W. Smith, Ward 13, ne se ne ne 19-4s-2w (otd 2109) 360 2232
Pottawatomie County—
Denver P&R, Decker 2, sw sw se 8-7n-4e (otd 4025) 325 4085
Northern States, Williams 2, nw ne nw 14-7n-4e (otd 3179) 15 3424
Seminole County—
Carter, Dunn 5, sw se nw 3-10n-8e (otd 3426) 25 3490
Stephens County—
Skelly, Martin 6, sw se nw nw 36-1s-5w (otd 824) 75 846
Cities Service, Surber 17, 160 ft w of s½ s½ 33-1s-8w (otd 1680) 323 2350

Pennsylvania

Bradford District—
C. M. & F. J. Lippert, fee ..... 3 ..
J. Wesley Coast, McCaffery ..... 1 ..
Miller Bros., fee ..... 7 ..
Penn Valley Crude Oil No. 2, fee .. 1½ ..
P. & L. Oil Co., Duke & Taggert .. 1 ..
Daly & Healy, Bing 500 ..... 1 ..
H. E. Canis estate, No. 2, Lamb ... 3 ..
Bradford Transit Co., 23 wells .... 23 ..
Forest Oil Corp. ..... 1 ..
Forest Petroleum Corp., 2 wells ... 2 ..
Niagara Oil Corp., 3 wells ..... 3 ..
Water Intake—
Messer Oil Corp., Redfield ....
Melvin Towne Oil Co., fee ....
Andrus & McDowell, Bing 218-96 .. .. ..
Forest Oil Corp. ....
Forest Petroleum Corp., 2 wells ... .
Niagara Oil Corp. ....
N. Y.-Penn. Gas Field—
Leiderbach, L. C. Roosa No. 2 ... ¶ ..
Middle District—
United Natural Gas Co., George Wurster ..... ¶ ..
S. N. Moyar, Summit ..... 1 ..
First Natl. Bk. of Oil City, Frank Messina ..... ½ ..
Lewis Slicker et al, J. M. McLaughlin & Co. ..... • ..
Shannor Oil Co., Lot 106 ..... 1 ..
Butler-Armstrong District—
Citizens Natl. Bk. of Evans City, H. D. Myers ..... 2 ..
John McElroy et al, Whiteside .... abnd ..
C. L. Heeter, Wick heirs ..... ¶ ..
D. L. Baird, N. M. Hoover ..... 4 ..

Texas Panhandle

Gray County—
Skelly Oil Co., Lovett 3 ..... 425 2998
Schafer 136 ..... 407 3270
W. H. Taylor et al, Fee 7 ..... 792 2926
Fee 8 ..... 264 2899
Texas Co., M. B. Davis 21 ..... 85 2860
Hutchinson County—
J. E. Crosbie, Inc., Pitts 43 ..... 299 2875
Danube Oil Corp., Sanford 4-A 174 2820
Parton & Holt, Whittenburg 9 .... 116 3011
Phillips Pet. Co., Cockrell 82 ..... 225 3047
Houck-Starnes 1 ..... 295 3277
R. H. Lizzie 7 ..... 259 3272
Power Pet. Co., Hale 11 ..... 55 3066
Harry Stekoll et al, Whittenburg 13-A ..... † 2673
Wheeler County—
Gene Butler et al, Johnson 1 ..... 80 2252
Pace & Ward, Patterson 1 ..... 315 2150

North Texas

Archer County—
M. M. Bradley et al, Maxwell 2 ... • 1257
Guy J. Brown et al, Perkins 4-E .. 10 1604
W. B. Hamilton et al, Graham 8-B 65 1147
Pet. Producers Co., Lauster 4 .... • 1339
Richardson 8-B 9 1306

[*Continued on next page*]

United States Well Completions—*Continued*

Company, Well and Location | Init. Prod. Bbls. | Depth

NORTH TEXAS—Continued

Archer County (Griffin-Kadane)—
Deep Oil Dev. Co., Griffin 3-A.... 624 4393
Jack E. Kadane, Tr. Griffin 2-D.. 912 4376
Archer County (Hull-Silk)—
Magnolia, Rutty 18 (pb 3802)..... 196 4660
Archer County (Scotland)—
Shell, Coleman 4-B 1332 5130
Southern Pet. Explo. Co., Wilson 5-A (pb 4048) 120 4925
Clay County (Wildcats)—
N. H. Martin & Sons, McClellan 1 * 1410
Sinclair Prairie, Scheer 1 ..... * 6459
Clay County (Antelope)—
Shell, E. Henderson 4 ..... 294 3251
H. Henderson 15 ..... 744 3186
Clay County—
Akin-Dimock-Costley, Saner 2-A.. 65 1122
Dudley-Fisher & Kahn, Taylor 1.. * 1093
Geo. Golden et al, Enyart 6 ..... 25 1128
Stayton Oil Co., Turner 1 ..... * 1209
Cooke County (Wildcat)—
Kimbell-Bohner-Gannon, Phillips-Herman (McGeorge) 1 ..... * 2525
Cooke County—
Jas. L. Anderson et al, Osburn 1.. 10 2320
Fred & Frank Jones Drl. Co., Fette 1 ..... 8 1154
Cook County (Walnut Bend)—
Sinclair Prairie, Ramsey 13 ..... 577 4880
Grayson County—
Brown & Laves, Stephenson 1.... * 4123
Jack County (Wildcat)—
L. T. Burns et al, Wright 1 ..... * 5997
Jack County—
John W. Campbell et al, Roach 5.. 4 503
Panhandle Ref. Co., Shoun 1-B.... * 3086
Montague County—
Bridwell Oil Co., Begley 4-D..... * 1578
Montague County (Hults-Owens)—
Wilcox O&G Co., Bullard 1..... * 6338
Montague County (Benton-Holmes)—
Mudge Oil Co., Custers 4 ..... 168 2290
Throckmorton County (Wildcat)—
A. L. Wasson et al, Erwin 2..... * 816
Throckmorton County—
R. F. Gilman et al, Tuton 2..... * 775
Owenwood Pool No. 3, Housley 16.. 50 732
Housley 17 ..... 30 731
Wichita County (K-M-A)—
Bishop Oil Co., Waggoner-Texaco 2-E 480 3897
Hammon-Hanlon-Buchanan, Fassett-Tuttle 39 ..... 528 3970
Hanlon & Buchanan, Fassett-Tuttle 27-G 448 4080
Wichita County (K-M-A Ellenberger)—
Shell & Phillips Pet., Preston 6-B-E 73 4489
Tide Water Associated et al, Pettit 13-E 400 4239
Wichita County—
Hanlon & Buchanan, Burnett 9-AA 10 729
Oscar Kemp et al, Heiserman 3.. † 789
Woody Drl. Co.-T. H. Peery, McClure 1 ..... * 1673
Wilbarger County (Fargo)—
Amerada, L. Parker 2 ..... 273 3936
Young County (Wildcats)—
Marie Eckert et al, Gadberry 2.... * 954
Kerlyn Oil Co.-Phillips Pet. Co., E. Taylor 1 ..... 696 4255
J. G. Wooten et al, Wolfe 1..... * 528
Young County—
Paul Atchley et al, Deitrich 2.... * 1020
Bronlon Producing Co., Taylor 2..1944 4010
Panhandle Ref. Co., Guinn-Texaco 3 ..... * 2854
Henry Zweifel et al, Deats 1..... 20 4535

OLD WELL DEEPENED

Young County—
W. E. Prod. Co., King 1 (otd 3902).2400 4295

West Texas

Andrews County (Emma)—
Montecito Corp., Cowden 4 ..... 893 4266
Cowden 6 .....1389 4263
Cochran County (Slaughter)—
Atlantic Ref. Co., Boyd-Humble 28 976 5058
Honolulu Oil Corp., Dean 1, Lab. 16 * 5110
Crane County (Church-Fields)—
R. A. Barger et al, University-Humble 2-E 347 3040
Crane County (Gulf-McElroy)—
Gulf, McElroy 258 ..... 308 2992
Crane County (Gulf-Waddell)—
Gulf, Waddell 47 .....7486 3500
Crane County (Sand Hills)—
Gulf, Waddell et al 30.....1159 4575
Humble, Tubb 61 ..... 114 4446
Tubb 62 ..... 963 4535
Tubb 63 ..... 477 4420
Crockett County (Crockett)—
Gilcrease Oil Co., University 13, sec 13 ..... 156 1444
Crockett County (World-Powell)—
L. H. Armer et al, Powell 2-X.... 73 2659
Garrett Smith et al, Powell 2-D... 196 2676
Ector County (Foster)—
M. A. Grisham et el, Henderson-Humble 1-B 265 4419
Sinclair Prairie, Johnson 21-B....1266 4230
M. Gist 8 ..... 818 4275
Texas Co., Johnson 4 ..... † 4160
Trinity Dr. Co., Johnson-Conoco 2.. 322 4218
Ector County (Goldsmith)—
Gulf, Goldsmith 373 ..... 737 4253
Goldsmith 374 .....1199 4251
Goldsmith 375 ..... 583 4202
Ector County (North Cowden)—
Sinclair Prairie, Johnson 20-D....1408 4175
Stanolind, Smith 25-G..... 346 4280
Gaines County (Cedar Lake)—
Stanolind, American Warehouse 8.. 830 4745
Gaines County (Seminole)—
Amerada, Austin 8 ..... 535 5250
Gaines County (Wasson)—
Amon G. Carter et al, Moore 7-A-46 662 4979
Garza County (Wildcat)—
Ed McAdams et al, Stoker 1..... * 3398
Hockley County (Slaughter)—
Devonian Oil Co., Mallet 4.....1474 5060
Honolulu Oil Corp., Slaughter 23-B.1153 4999
Magnolia, Mallet 11-G 1058 5004
Mallet 13-G 1415 5001
Mallet 13-J 1200 5040
J. W. Murchison et al, Peck 1.... 571 4948
Sid W. Richardson et al, Slaughter 22-B 367 4954
Slaughter 23-B 466 4972
Slaughter 24-B 507 4940
Stanolind, Slaughter 38-B 856 5025
Texas Co., Mallet 8-B 1170 5014
Slaughter 43 .....1410 4990
Howard County—
J. C. Ratliff et al, Denman 1..... 383 2884
Pecos County (Lehn)—
Burk Royalty Co., Sullivan 4-C (pb 1716) 60 1895
Sullivan 7-C 132 1726
Pecos County (Masterson)—
Burk Royalty Co., Masterson-Samwan 8 ..... 48 1478
Pecos County (Taylor-Link)—
H. G. Eastham et al, University 4. 300 1709
Sam Letwin et al, University-Amerada 2-E 370 1607
Pecos County (Tobarg)—
Stanolind, Smith 13-B 50 388
Pecos County (Walker)—
Cardinal Oil Co., White-Baker 4-J 96 2150
Stonewall County (Wildcat)—
Shell, Patterson 1-A ..... * 6827
Sutton County (Wildcat)—
M. C. Moore-S. B. Roberts, Allison 1 † 780
Upton County (McCamey)—
Shell, Baker 14..... 287 2219
Ward County—
Gulf, O'Brien 190 ..... 174 2689
Winkler County (Keystone)—
Richardson Oils, Inc., B. F. Jenkins 1-B 291 3482
Standard of Texas, Baird 43, sec 19 218 3390
Yoakum County (Wasson)—
American Liberty Oil Co., Keller-Texaco 14 ..... 91 5208
Knight-Texaco 7 ..... 269 5309
Continental Oil Co., Kendrick 6, sec 867 .....1584 5115
Drl. & Explo. Inc., Hudson-Shell 2-C 397 5100
Hudson-Shell 6-C 340 5100
Randall-Humble 1-B 138 5100
T. P. Coal & Oil Co., Bennett 33... 152 5228

OLD WELLS DEEPENED

Crane County (Gulf-McElroy)—
Gulf, J. T. McElroy 28 (otd 2922).. 166 3001
Upton County (McCamey)—
Gulf, Lane 5-C (otd 2270) 65 2345

East Texas

Joiner Area—
Ralph E. Fair, Inc., Maxwell 20-A. 500 3753
Kilgore Area—
Barnett Pet. Corp., Dickson-Saxon 5 .....1200 3573
Dickson-Saxon 6 ..... 750 3570
Dickson-Saxon 7 .....1200 3572
Bowles Oil Co., Wells 22.....1500 3689
Sinclair Prairie, King 70-A.....1600 3524
Longview Area—
C. A. Lee & R. W. Burnett, M. Green 2 ..... 900 3706
Selby O&G Co. et al, Snavely 31-A. 450 3706
Snavely 37-B 490 3567
Tide Water Associated, Lake Devernia 52 .....2600 3500
Anderson County (Long Lake)—
H. L. Hunt Oil Co., R. M. Johnson 2 (111⅛-ac) .....¶115 5370
Navarro County (Wildcat)—
J. B. Daniel et al, Mills 1..... * 3525
Wood County (Hawkins)—
R. W. Fair et al, Hamill 1 (19-ac). 310 5034
Humble, L. A. Bryan 2-B..... 470 4831
M. A. Kay 3 (330.31-ac)..... 422 4832
J. H. Kirkpatrick 1-B (73.46-ac) (pb to 3854 ft) ..... ¶8 4490
J. M. McLain 1-A (131.67-ac).... 250 5063
A. C. Pruitt 1 (½-ac)..... 452 4834
Roger Lacy et al, Pouncey 4 (101.48-ac) 403 4831
Pouncey 5 (101.48-ac) 348 4925
Smith Price et al, G. Maberry 1 (56¼-ac) 407 4730
Stanolind, Miller 3 (118⅛-ac)..... 398 4864
O. F. Wencker et al, Slaughter 2 (7.8-ac) 504 4810
Cass County (Wildcat)—
Strahan & King, Mrs. Sloan Taylor 1, Howard Reams sur ..... * 2858
Marion County (Wildcat)—
Dean Bros., Fee 1, B. F. Weatherred sur ..... * 3663
Marion County (Pine Island-Smithland)—
R. J. Davis, Easterling 1, M. G. Nall sur ..... * 2528

Southwest Texas

CORPUS CHRISTI DISTRICT

Bee County (W. Tuleta)—
Salt Dome Oil Corp., Tuleta Merchantile 3-A ..... * 3087
Brooks County (Kelsey)—
Humble, McGill 83 ..... 450 4969
Brooks County (Palo Blanco)—
Standard of Texas, K. J. Hocker 1, outpost ..... * 6281
Hidalgo County (Nichols)—
Phillips, Yturria 4 ..... * 4350
Jackson County (Ganado)—
Texas, Mauritz 5-A 250 6524
Jackson County (Lolita)—
Magnolia, Four-Way 6 ..... 550 5948
Humble, L. Ranch 20-A 950 6407
Jackson County (Maubro)—
Humble, C. C. Bonnett 1 ..... 500 5242
Jackson County (West Ranch)—
Magnolia, West 205-A 400 5100
West 207-A 350 5766
Jim Wells County (East Premont)—
Magnolia, A. A. Seeligson 22..... 650 5920
Jim Wells County (Premont)—
Magnolia, L. E. Seeligson 1, Unit 2 28 3718
T. F. Murchison, Seeligson 1-A.... 75 3736
Jim Wells County (Wade City)—
W. R. Quin, Mueller 1 ..... * 4931
Lavaca County (Wildcat)—
Normandie Oil Corp., Smolik 1... * 8015
Live Oak County (South White Creek)—
Simmons Oil Co., Kline 1 ..... 110 1926
Live Oak County (Wildcat)—
C. G. Newton, Schulle 1..... * 1850
Nueces County (Agua Dulce)—
H. H. Howell, Schulze 1..... 550 6980
Richardson Pet. Co., Guaranty 2 .....¶40 & 200 7050
Texon Royalty Co., Horne 4 ..... 650 7115
Nueces County (Bentonville King)—
Southern Minerals, Walker 15 .....¶.65 & 17 6360
Nueces County (Clara Driscoll)—
Wellington, Clara Driscoll 16 .... ¶20 3821
Nueces County (East Flour Bluff)—
Humble, Flour-Bluff-State 7-D (Relief) ..... * 8641
Kate Ridder 1-D ..... * 6810
Nueces County (Minnie Bock)—
Tom Graham, Rutland 4 ..... * 4025
Nueces County (S. Clara Driscoll)—
Texas Conservative, R. E. Taylor 1 475 5475
Refugio County (Fagan)—
Seatex, Fox 1 ..... 350 5937
Refugio County (Woodsboro)—
Sinclair Prairie, Boenig et al 2.... * 6820
San Patricio County (Odem)—
Seaboard, Parker 1 ..... * 7160
San Patricio County (Wildcat)—
Fred W. Shield, J. M. Clemons 1.. * 4878

SAN ANTONIO DISTRICT

Bastrop County (Elgin)—
Marts & Beaven, Inc., Cartwright 1, outpost ..... * 3608
Bexar County (Gas Ridge)—
Southwest Dr. Co., Covel 32 ..... 2 480
Covel 34 ..... 2 475
Caldwell County (Tenney Creek)—
Ellmag Oil Corp., Connoly 4-C.... 400 2475
F. W. Wiegand, Owens 1, outpost.. * 2961
Caldwell County (Bee Creek)—
R. R. Ogden, Miears 1-E 192 2207
Miears 2-E 301 2342
Milam County (Wildcat)—
Chas. Roesner, Kirk 1 ..... * 625
Williamson County (Wildcat)—
Stolley & Mills, Burkhart 1 ..... * 2150

LAREDO DISTRICT

Duval County (Hoffman)—
Cox & Hamon, Cantu (Gonzales) 2 40 2851
Duval County (Lundell)—
Gov't Wells Oil Co., Lundell 60.. ¶8 1564
Humble, White 16-B ..... † 1547
Duval County (Piedre Lumbre)—
Magnolia, Duval Ranch 32 (100).. * 2134
Duval Ranch 30 (203) ..... * 3400
Duval County (Sejita)—
Trinity Gas Co., M. F. Yzguirre 1 .....¶50 & 250 5547
Duval County (Sweden)—
Hiawatha, Herberger 6, new sand.. 500 4940
Duval County (Tarancahuas)—
Plymouth, Hoffman 3-C, outpost.. * 3461
Duval County (Wildcats)—
H. H. Howell, Escobar 1 ..... * 6060
Luling O&G Co., Danciger 1..... * 5512
Jim Hogg County (Colorado)—
Humble, King-Colorado 40-B 450 2857
Jim Hogg County (Holbein)—
Guy A. Davis, Holbein (McLean) 5-B 168 2827

United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth
Jim Hogg County (Wildcat)—		
Lon Cron, Hellen 1	•	3620
McMullen County (Wildcats)—		
Glenda Oil Co. et al, Reed 1	•	1495
E. M. Jones, Ezzell 1-B	•	1773
Starr County (La Reforma)—		
Porter & Pickens, A. Guerra 1, new sand	500	6198
Starr County (Rincon)—		
Continental, Slick 108-A	600	4165
Starr County (Yturria)—		
Sun, Chapotal Land Co. 5, outpost	350	4236
Starr County (Sun)—		
Sun, Perez 2	350	4675
Starr County (N. Rincon)—		
Sun, Mateo Saenz 6	•	5513
Webb County (Glen)—		
W. H. Holland et al, Bruni 1-B	48	2195
Webb County (Wildcat)—		
Transwestern, Puig Bros. 1	•	2134

Texas Gulf Coast

Austin County (Wildcat)—		
Woodley Petroleum, Polcak 1	•	7997
Brazoria County (Wildcat)—		
Skelly, Vieman 1	•	9964
Fort Bend County (Wildcat)—		
Jack Frazier et al, Briscoe	•	8011
Galveston County (Caplen)—		
Sun, State 3-26	•	6311
Galveston County (League City)—		
Phillips, Rice Est 3	164	8750
Hardin County (Saratoga)—		
Charles Paggo & Co., Petty Est. 1	16	1356
Harris County (Dyersdale)—		
H. C. Cockburn, Burkitt 17	528	4077
Harris County (Goose Creek)—		
Grace Oil Co., Busch 10	190	2595
Jefferson County (LaBelle)—		
Sun, Broussard & Hebert 10	431	7418
Liberty County (Martha)—		
Stanolind, Seaberg C-7	106	8250
Montgomery County (Wildcat)—		
Glen H. McCarthy, Seyle 1	87	10008
Polk County (Wildcat)—		
Pan American, Goodrich Community 1	•	5405
Polk County (Segno)—		
Gulf, Wing 48	¶	11743
Wharton County (Withers)—		
F. W. Michaux et al, Pierce Est. A-5	129	5374
F. W. Michaux et al, Pierce Est. A-7	102	5408
F. W. Michaux et al, Pierce Est. 16A	183	5386
Wharton County (Wildcat)—		
Amerada, Wigginton 1	•	7916

West Virginia

Calhoun County—		
Paul Browser, Haught 1	¶0.04	1970
Connelly, Brannon & Weaver, McCune 1	10	2076
So. Penn. Nat. Gas Co., Rothlisberger 3	¶0.94	1797
Clay County—		
Pittsburgh Oil & Gas Co., Boggs 1.	•	2074
Gilmer County—		
Osburn Gas Co., Osburn 1	¶ 0.5	1424
Hope, Turner 8563	¶0.36	2227
Clem S. Morris, Roberts 1	¶ 0.2	2144
Hancock County—		
R. J. Braden Co., Hewit heirs 29	1	885
Jackson County—		
United Fuel Gas Co., Heilman 5029	¶7.47	5176
United Carbon Co., Miller 2	¶10.56	4968
Columbian Carbon Co., Berry 1	¶18.15	5058
Kanawha County—		
Glen Dearth, Asbury 1	•	1734
Lewis County—		
South Penn, Turner 5	¶0.09	2945
Marion County—		
Thomas Bros. & H. C. Wilson, Thomas 1	¶ 0.4	2261
Putnam County—		
Liberty Oil & Gas Co., Toney 1	•	——
Reishman Oil & Gas Co., Bell 1	¶0.54	3325
Ritchie County—		
Hope Nat. Gas Co., Clayton 8560	¶ 0.5	1929
Earl Goodwin, Zigan 1	•	2480
Hartman & Richards, Harvey 1	•	1915
Wetzel County—		
Mfgrs. Lt. & Heat Co., Goddard 1.	•	3225
Wirt County—		
S. W. Douglas, Kidwell heirs 3	•	372
Wood County—		
Hoaglin Oil Co., Dye 2	•	872
OLD WELLS DEEPENED		
Marshall County—		
Carnegie, Miller heirs 4	•	2967
Lincoln County—		
Pridemore & Adkins, Egnor 1 (otd 2242)	¶0.06	3665

West Central Texas

Brown County (Wildcats)—		
R. D. Herring et al, Martin 1	•	1503
A. O. Turner et al, White 1	•	425
Callahan County (Wildcat)—		
Cordova Union Oil Corp., Windham 1	•	1508
Callahan County—		
C. D. Robarts et al, Grandy 2	•	580
Coleman County (Wildcats)—		
Merry Bros. & Perini, Greer 1	152	3937
States Oil Corp., J. Hughes 1 (pb to 3340 ft)	¶ .3	3566
Coleman County—		
States Oil Corp., Sprinkles 1	525	3629
Comanche County—		
J. W. McClung et al, Durden 1	•	400
Durden 2	3	280
O. L. Stutenroth et al, Kirk 2	•	2800
Comanche County (Wildcat)—		
J. C. Hamer et al, Smith 1	•	749
Eastland County—		
E. M. Thomason et al, Busbee 1	•	600
Hamilton County—		
Lone Star Gas Co., Harris 1	¶ .7	2822
Burks 1	¶ .75	2712
Jones County—		
Condor Pet. Co., Sayles 34	159	1952
Pet. Producers Co., Akard 5	210	2144
Ungren-Frazier, Hollis 1	•	2490
McCulloch County (Wildcat)—		
D. H. Brock et al, Cox 1	•	1184
Shackleford County—		
Fain-McGaha Oil Corp., Morris 7	48	1552
Mrs. Minnie J. Gross et al, Spears 17	6	733
Hickok P&D Co.-H. Reynolds, Nail 15-A	447	1607
C. W. Hoffman et al, Morris 39	•	1652
Mathews & Holcomb, Sanders 1	•	528
Shackelford County (Wildcat)—		
C. J. Kleiner et al, Dawson-Conway 1	•	1581
Taylor County—		
Tal-Vez Oil Co., Smith 2	•	2443

Kirby Petroleum Company

Exploration Geophysics

By

H. J. JAKOSKY, Sc. D.

EXPLORATION GEOPHYSICS describes the fundamental theories, equipment and field techniques of the recognized exploratory geophysical methods and illustrates their application to problems of economic geology. Concisely and clearly written, it is a valuable book for geophysicists; geologists; teachers; physicists; petroleum, mining and civil engineers; supervisors and production men of oil and mining companies; supervisors and directors of public works; patent attorneys; prospectors; et al., who need the latest and most up-to-date, authoritative information. Unequalled in completeness of authoritative information and clarity of expression. It is a complete compilation of modern Geophysical techniques.

800 pages • 430 illustrations • Size 6x9 • Price $8.00

Send orders to

The Gulf Publishing Company

P. O. Box 2608 **Houston, Texas**

American Motorists Miss 1941 "Breathless Moment"

PRESS RELEASE—American motorists this year failed to receive the customary advance warning of the "Billion Dollar Breathless Moment," which falls each year on the day when the nation's gasoline tax bill passes the billion-dollar mark. The speed-up in gasoline taxes this year was so fast that the motorists of the nation paid out a billion dollars in such levies before anybody realized it. The billion dollar breathless moment this year fell on September 18, or two months earlier than last year.

American motorists, however, will have plenty of time to be breathless over gasoline taxes during the balance of the year. In 1939, the first year that the nation's gasoline tax revenue reached the billion dollar level, a total of $1,031,650,000 was collected in state and federal gasoline taxes. In 1941, it is estimated $1,300,000,000 in gasoline taxes will be taken from the pockets of the nation's motorists. An increase of $300,000,000 in their annual tax bill in three years should be enough to make the motorists breathless any time they think of it.

Adv.

OIL INDUSTRY PHOTOGRAPHY

MERCHANTS PHOTO SERVICE

415 Louisiana Houston, Texas

WILDCAT REPORT
New Starts and Completions

CALIFORNIA

FIRST REPORTS

Fresno County—General Pet. Corp.'s Esperoade 75-33, 33-16-17, lcn. Barnsdall Oil Co.'s Ripperdan 71-24, 24-15-17, cellar.

Los Angeles County—Texas Co.'s Spencer 1, 1-4-11, foundation.

Ventura County—Ventura Southern Oil Co.'s McCampbell G-1, 19-3-19, grade. Pacific Western Oil Corp.'s Temescal 11, 4-4-18, lcn.

COMPLETIONS

Fresno County—Sam B. Herndon's Bottoms 1, 3-14-16, abnd 5571 ft.

Kern County—Shell Oil Co.'s Bell 52-21; 21-25-25, abnd 6339 ft in granite. J. Pankratz's JPR-Coffee 1, 2-28-28, abnd 2065 ft in barren lower Vedder oil stained at top, entered at 1844 ft.

Madera County—Shell Oil Co.'s Chowchilla Farms 74-9, 9-11-14, abnd 9062 ft.

Santa Barbara County—Western Gulf Oil Co.'s Reubel 1, sw Rancho Temescal, abnd 7096 ft in sandy siltstone, 70 degree dips. Cored coarse pebbly sand at 3700 ft.

Solano County—Standard Oil Co.'s Suisun Comm. 1, 36-4-2, abnd 5440 ft. Standard Oil Co.'s Tippets 1-1, 15-12-13, abnd 2640 ft.

ILLINOIS

FIRST REPORTS

Bond County—Fox & Conry's Burganstock 1, ne nw sw 11-4n-2w, lcn.

Christian County—R. H. Brians' Orr 1, se se sw 15-13n-1e, lcn.

Clay County—Walsh-Dye Drlg. Co.'s Rudolphi 1, ne ne se 1-4n-8e, lcn.

Fayette County—Booth & Booth's Defend 1, nw sw nw 26-4n-1w, dr.

Franklin County—E. S. Adkins' Whaley 1, se sw se 35-5s-2e, dr.

Jackson County—Glenwood O. Co.'s Treax-Traer 2, se nw ne 25-7s-2w, lcn.

Jefferson County — Union Mining Co.'s Blackward 1, se se ne 23-3s-4e, lcn. Ledbetter-Gardenhire's Logan 1, c e½ nw sw 15-4s-4e, lcn.

Perry County—G. H. Blankenship et al's George 1, nw ne sw 23-4s-1w, lcn.

Richland County—Pure's Miller 1, w½ se ne 2-3n-9e, lcn.

Shelby County—Wiser Oil Co.'s Smith 1, c sw se nw 5-10n-3e, dr.

St. Clair County—Ashby Pet. Co.'s Zimmerman 1, se ne se 1-1s-6w, lcn.

Washington County—Jack Darnell et al's Beckmeyer 1, c s½ ne nw 32-3n-2w, lcn.

Wayne County—Peyick's Gen. Amer. Life Co. 1, se sw nw 30-2s-6e, lcn. Carter's Keller 1, c w½ sw sw 4-2n-5e, dr.

White County—L. B. Hoss' Bechlaft 1, sw sw ne 5-8s-2w, lcn. Rockhill's Stanford "A" 1, c nw sw nw 29-3n-8e, dr.

COMPLETIONS

Christian County—Marsch's Krall 1, n½ sw nw 9-13n-1e, abnd 1225 ft.

Coles County—William Thomas' Taylor 2, sw sw ne 33-14n-10e, abnd 245 ft.

Edwards County—H. K. Riddle's Toops 1, sw nw sw 17-3s-14w, abnd 3169 ft.

Franklin County—George D. Dayl's Collins 6, e½ ne sw 34-7s-2e, abnd 2830 ft.

Gallatin County—Delta Drlg. Co.'s Minier 1, ne ne nw 28-8s-9e, abnd 2993 ft.

Hamilton County—Politis et al's Mayberry 1, ne nw ne 13-6s-6e, Aux Vases 3090-3107 ft, td 3110 ft, 225 bbls oil.

Jasper County—Shulman Bros.' Prudential Life 1, s½ nw se 6-6n-10e, abnd 2888 ft.

Richland County—Ohio's Walden 1, s½ nw sw 20-2n-14w, abnd 3203 ft. Richey et al's Richey 1, e½ se sw 23-4n-14w, abnd 3073 ft.

Saline County—Potter's Sutton 1, se se sw 28-8s-7e, abnd 2227 ft.

St. Clair County—Geo. A. Morris' Rasp 1-A, nw nw sw 32-2n-7w, abnd 2075 ft.

Washington County—Whitaker et al's Garnholz 1, sw se sw 24-1s-2w, abnd 1566 ft.

White County—Papoose Oil Co.'s Driscoll 1, w½ sw se 18-5s-8e, abnd 3584 ft. N. V. Duncan et al's Blair 1, se se ne 20-6s-10e, abnd 2940 ft.

INDIANA

COMPLETIONS

Knox County—H. H. Sprowles' Smith 1, e nw se 14-4n-10w, abnd 934 ft.

Madison County—Arthur Laws' McAllister 1, w½ ne se 25-18n-7e, Trenton 909-13 ft, td 913 ft, 25,000 cu ft gas. A. W. Modert's Hughes 1, ne nw sw 10-21n-8e, abnd 1025 ft.

Spencer County—J. B. Miller's Dooley 1, nw ne nw 19-7s-7w, abnd 1090 ft.

Sullivan County—Reynolds' Poe 1, ne ne sw 3-8n-10w, otd 1477 ft, td 1480 ft, abnd.

White County—National Pet. Co.'s Brown 1, nw ne nw 16-28n-4w, abnd 990 ft.

KANSAS

FIRST REPORTS

Cowley County—Oil Interests, Inc.'s Poovey 1, nw nw se 7-32s-3e, cellar.

Rice County—Ingling & Parker's Vincent 1, c e ½ se se 3-21s-9w, lcn.

Woodson County—Kilby Bros.' State Exchange Bank 1, sw sw ne 35-23s-15e, dr.

COMPLETIONS

Barton County—Aladdin Pet. et al's Mull 1, c n½ nw se 2-20s-15w, Anhy 901 ft, Ft. Riley 1935 ft, Florence 2055 ft, Topeka 2974 ft, Lansing 3308 ft, Congl 3575 ft, Arbuckle 3652-3749 ft, abnd.

Butler County—Adair & Morton et al's Lietzke 1, ne nw ne 3-28s-5e, Lansing 1800 ft, Miss 2720 ft, base Miss 3033 ft, Arbuckle 3119 ft, abnd 3134 ft.

Ellsworth County—Champlin Refining's Radenberg 1, c s ½ sw ne 7-18s-10w, Anhy 506 ft, Lansing 2995 ft, Arbuckle 3318-3400 ft, abnd.

Greenwood County—Pryor & Lockhart's Keller 1, nw nw se 28-26s-13e, Bartlesville shale 1550-85 ft, no show, Miss 1610 ft, gas at 1611-14 ft, TD 1663 ft, abnd.

Leavenworth County—A&B Pipeline's Corlett 1, c sw ne 19-10s-21e, Base Hertha 660 ft, Sand 1358-70 ft, Hole full water 1360 ft, Miss 1417-30 ft, abnd.

Pawnee County—Max Cohen et al's English 1, sw sw ne 1-21s-15w, Viola 3582 ft, Simpson 3600 ft, Arb 3640 ft, TD 3660 ft, 2500 gals acid, shot 3643-48 ft, tested, shot 3398-99 ft, 3394-3416 ft, 1000 gals acid, shot 15 qts 3645-50 ft, water, abnd.

MICHIGAN

FIRST REPORTS

Roscommon County—Grale Oil Co.'s Halestro 1, nw se ne 9-21n-1w, dr.

Missaukee County—Andrews & Bond's Kelly 1, c s½ se ne 29-22n-7w, rig.

COMPLETION

Isabella County—White & Rowmor's Swan 1, c e½ ne ne 4-15n-3w, Dundee 3681 ft, td 3822 ft, abnd.

MISSISSIPPI

FIRST REPORTS

Lamar County — Freeport Sulphur Co., Tatum Lbr. Co. 8, 1070 s & 250 e nwc 13-2n-16w, rig.

Madison County—C. L. Morgan, Jones 1, 1914 ft, n and 2036 ft e swc 4-11n-3e, rig.

COMPLETION

Lamar County — Freeport Sulphur Co., Tatum Lbr. Co. 7, 2271 ft s and 1052 ft e nwc 13-2n-15w, elev 256 ft; did not reach salt, dry, abnd, td 2095 ft, (shale).

NORTH LOUISIANA

FIRST REPORT

Natchitoches Parish—John L. Trentman, Brown Lbr. Co. 1, nw nw 31-11n-10w, mat.

COMPLETIONS

Grant Parish—H. L. Hunt, Goodpine F-5, sw sw 22-8n-1w, dry, abnd, td 6000 ft.

LaSalle Parish — Carter Oil Co., Tensas Delta E-1, se sw 5-5n-4e, dry, abnd, td 6095 ft.

Wildcatting *MUST* Go On

Not alone for defense, not alone to replenish diminishing reserves. The wildcat well is another effort in the industry's self-expansion.

Nothing must be allowed to interfere with or retard the wildcat test. If anything, more exploratory wells rather than fewer, must be drilled. This phase of the industry deserves the most serious thought ... and must receive a guarantee of priority of needed materials.

With every wildcat that opens new production, the security of our industry is enhanced, the security of our nation is enhanced, and another pool of crude is added to a backlog of reserves that will be necessary after the present emergency.

American Association of Oilwell Drilling Contractors

DALLAS, TEXAS

GRUBB & HAWKINS

Developers & Producers

18TH FLOOR

MELLIE ESPERSON BLDG.

HOUSTON, TEXAS

LISBON IBERIA OIL CORPORATION

Producers & Developers

18TH FLOOR

MELLIE ESPERSON BLDG.

HOUSTON, TEXAS

HENSHAW BROTHERS, INC.

Smith-Young Tower

SAN ANTONIO, TEXAS

HOUSTON LABORATORIES

Analytical and Consulting Chemist

Podbielniak Gas Analysis

Oil Field Brines, Waters and Cores

Complete Evaluation of Crude Oils

Long Distance 267, Box 132, Houston, Tex.

SOUTH LOUISIANA

FIRST REPORT

LaFourche Parish—Ernest Cockrell's La-Fourche Land Co. 2, 5 mi e Golden Meadow, North Cutoff area, 100 ft w & 200 ft n of se cor nw nw sec 32-18s-22e, pd 7500, Housh & Thompson contractors, lcn.

COMPLETION

Vermilion Parish—Texas Co.'s R. S. Henry 1-B, Erath area, sec 30-13s-4e, sand showing oil 8494-8532 ft, failed on production tests, abnd 12,005.

OKLAHOMA

FIRST REPORTS

Creek County—Deep Rock's Meadors 1, 16-15n-7e, dr. J. C. Williams' Steinman 1, ne nw nw 17-16n-10e, dr.

Noble County—O. M. Mason et al's Wentz 1, c w½ nw ne 13-24n-3e, mir.

Okfuskee County—T. T. Kelly's Whitney 1, ne ne ne 3-13n-7e, lcn.

Payne County—Lon Turk et al's Gobbel 1, se nw ne 8-17n-1e, lcn.

Seminole County—Konawa Operating Co.'s Franks 1, ne sw sw 3-11n-8e, dr.

Wagoner County—Ruso Drlg. Co.'s Cornelius 1, nw nw se 5-16n-17e, spud.

COMPLETIONS

Carter County—Sinclair-Prairie's Ingram 1, nw ne nw 21-4s-3w, Dry sands 1820-24, Lime Congl. 2581-2660 ft, Top Arbuckle lime 2660, abnd 2765 ft.

Grady County—Winona Oil Co.'s Kay Estate 1, sw ne nw 6-10n-8e, Cromwell 3558 ft, abnd 3580 ft.

Jefferson County—Seitz Comegys et al's Bound 1, c sw sw sw 14-6s-6w, no show at 2001 ft, abnd.

Logan County—Helmerich & Payne et al's Knox 1, se se sw 4-15n-1e, Big Lime 4630 ft, Upper Oswego 4670 ft, stain 4925-60 ft, Pink Lime 4970-80 ft, Upper Bartlesville 4985 ft, Lower Bartles. 5055-5065 ft, base Pa. & Miss 5070 ft, Woodford 5095 ft, Hunton lime 5156 ft, Sylvan shale 5267 ft, Viola 5374 ft, Simpson Dense 5401 ft, Dolo 5425 ft, 2nd Wilcox 5623 ft, Base 1st Wilcox 5475 ft, abnd 5637 ft. Magnolia's Patterson 1, nw se nw 29-15n-1w, Dewey 4000 ft, Perry gas sand 4055 ft, base of sand 4075 ft, Layton 4590 ft, O.C. ccb 4623 ft, ccb 4815 ft, Cleveland 4835 ft, Oswego 5280 ft, Miss 5604 ft, Woodford 5635 ft, Misener 5754 ft, Hunton 5757 ft, Sylvan 5765 ft, Viola 5869 ft, Dense 5925 ft, Marshall zone 6045-77 ft, 2nd Wilcox 6077 ft, TD 6113 in white water sand, abnd.

Osage County—Devonian's Osage 1-A, sw sw ne 34-22n-7e, Layton 1645 ft, Cleveland 1918 ft, Big Lime 2170-2259 ft, Oswego 2270-2305 ft, Prue 2343-2425 ft, broken sand 2416-36 ft, good sand with show 2636-60 ft, show oil & water 2660-65 ft, shot 100 qts 2636-63 ft, test 3065 ft in Hominy, 38 grav, test, shot 60 qts 3032-56 ft, test, pump 200 bbls oil, North Boston area.

Seminole County—Barnsdall Oil et al's Baker 1, ne se ne 29-11n-8e, Woodford 3970 ft, Hunton 4003 ft, Sylvan 4110 ft, Viola 4200 ft, Dense 4240 ft, 1st Wilcox 4267 ft, Show in Cromwell 3509-63 ft, PB in pipe 3562 ft, perf 17 holes 3509-21 ft, perf 45 holes 3511-29 ft, squeeze 150 sx, ripped 5509-29, shot 40 qts. 3509-29 ft, abnd.

Stephens County—Louis Sikes' Dibrell 1, se se sw 16-1n-8w, sand stain 3569-79 ft, dry sand 4660-4755 ft, stained 4980-84 ft, cored 4984-90 ft, cores 4990-96 ft, packer at 4982 ft, salt water, abnd.

SOUTHWEST TEXAS

FIRST REPORTS

Gonzales County—F. A. Brown's M. D. Parr 1, M. A. Williams sur, 3 mi s Waelder, loc, 3000 ft test.

Jim Wells County—Rand Morgan's Fee 1-H, blk 2, sec 1, Ragland sub, 1 mi sw Henshaw fld, sp on 5800 ft test.

LaSalle County—Humble's Bishop 1, ACH & B sur No. 11, 6 mi nw Cotulla, wor for 9000 ft test.

Milam County—R. D. Kirkland's Davis et al, J. J. Acosta lge, loc for 1800 ft test. Chas. Roesner et al's Henninger 1, S. C. Robertson sur, ru for 1000 ft test.

Travis County—Yates & Butcher's Noton 2, O. Buchanan sur, 15 mi e Austin, mi for 800 ft test.

Webb County—O. W. Killam's Puig 1, Albercas gr, 10 mi s Mirando City, sp for 2500 ft test. Magnolia's Santo Tomas 2, sec 63, 13 mi nw Webb townsite, dr 650 ft. Transwestern & Continental's Houston Oil Co. 13, blk 13, sec 268, Carolina-Texas area, prep to d d from 5104 ft to 9500 ft in Wilcox.

Wilson County—C. G. Newton's Hierholzer 2, R. Salinas sur, 15 mi w Floresville, ru for 1500 ft test.

COMPLETIONS

Brooks County—Standard of Texas' K. J. Hocker 1, Palo Blanco Gr, 1 mi nw Palo Blanco fld, abnd 6281 ft.

Caldwell County—F. W. Wiegand's Owen 1, Carr sur, 1 mi ne Tenney Crk fld, abnd 2954 ft.

Duval County—Hiawatha's Herberger 6, Swaden fld, comp 220 bpd 45-gr oil, ¼-in ch, tp 1170 lbs, cp 1740 lbs, perf 4932-37 ft, td 4940 ft, opens new sd in Jackson. H. H. Howell's Escobas 1, Sh 8, San Francisco gr, abnd 6060 ft. Luling O&G Co.'s Danciger 1, sur 18, 11 mi sw San Diego, abnd 5512 ft.

Jim Hogg County—Lon H. Cron's C. W.

BROTHER!

HERE'S THE WAY TO CLIP WIRE ROPE WITH A *FIST GRIP*... NOT A ROPE CRIMPING "FINGER-PINCH"

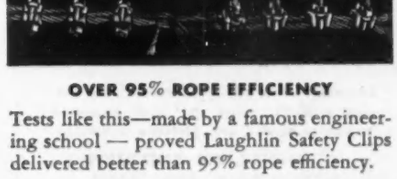
Laughlin drop forged Safety Clips *grip* around wire rope like a *fist* — the rope stays straight — uncrimped — can be used again when the clips are removed.

None of the narrow "finger-pinching" you get with ordinary U-Bolt clips which bow the wire — crimp it — and eventually break it.

Write for free booklet describing tests illustrated below. It will show you how to save on both rope and clips. Use handy coupon below – and mail it today!

YOU NEED FEWER CLIPS

Use 3 Laughlin Safety Clips instead of 4 U-Bolt clips — get the same strength.



OVER 95% ROPE EFFICIENCY

Tests like this—made by a famous engineering school — proved Laughlin Safety Clips delivered better than 95% rope efficiency.

THE THOMAS LAUGHLIN CO.
Portland, Maine

Send me free Safety Clip booklet. W-13

Name .....

Company .....

Address .....

Check here for catalog on items below ☐

Look for Laughlin products in Composite Catalog and buy through your distributo .

SOUTHWEST PRODUCING CO.

★

905 Alamo Nat'l Bank Bldg.

SAN ANTONIO, TEXAS

Luling Oil & Gas Company

PRODUCERS and MARKETERS

of

CRUDE OIL

★

2300 Alamo National Building

Gar. 5395–LD 33

SAN ANTONIO, TEXAS

REGISTERED PROFESSIONAL ENGINEERS

Air • Gas • Water

REPRESSURING

RECYCLING • PRESSURE MAINTENANCE

INSTALLATION • OPERATION

PETROLEUM ENGINEER

JO H CABLE

WICHITA FALLS, TEXAS

GAS MEASUREMENT • PERMEABILITY

COMPRESSOR PLANTS • POROSITY

BOTTOM HOLE PRESSURE • SATURATION

GAS OIL RATIO • RECOVERABLE OIL

CONTROL OF FLOW THRU FORMATION

REGISTERED PROFESSIONAL ENGINEERS

William M. Barret, Inc.

Consulting Geophysicists

Specializing in Magnetic Surveys

Contracts accepted for domestic and foreign projects, using the most improved instrumental and interpretative technique.

GIDDENS-LANE BUILDING

SHREVEPORT, LOUISIANA

FOR SALE: One high pressure and two low pressure 45 h.p. oil well boilers, oil field type, perfect condition. Also one 150 h.p. Marine type boiler. C. K. Hendricks, Box 805, Taylor, Texas.

FOR SALE: Used drill pipe due to discontinuing use of own drilling tools. Have two strings A-1 in 4" x 20' A.P.I. full-hole drill pipe, and two strings 3" drill pipe. Box 2018, Phone 4548, Tyler, Texas.

Hellen 1, sur 24, 22 mi sw Hebbronville, abnd 3620 ft.

Lavaca County — Normandie Oil Corp.'s Smolik 1, Caldwell sur, 4 mi s Halletsville, abnd 8015 ft.

Live Oak County—C. G. Newton's Schulle 1, Esves sur 186, 3 mi se Fashing, abnd 1850 ft.

McMullen County—Glenda Oil Co. et al's M. H. Reed et al 1, sur 74, 18 mi sw Tilden, abnd 1495 ft. E. M. Jones' H. Ezzell 1-B, sec 23, 2 mi sw White Crk fld, abnd 1773 ft.

Milam County—Chas. Roesner's Kirk 1, S. C. Robertson sur, 4 mi w Rockdale, abnd 625 ft.

San Patricio County—F. W. Shield's Clemons 1, I&GN sur, abnd 174 ft, 3 mi nw Mathis, abnd 4878 ft.

Starr County—Porter & Pickins Guerra 1, sh 6, LaReforma, comp 168 bpd 42-gr brn oil ⅛-in ch, 600 lbs tp, 800 lbs cp, perf 6152-54 ft, opens new sand, first crude prod in fld. Sun Oil Co.'s Chapotal 5, 1 mi nw Yturria fld, comp 143 bpd 9/64-in ch, 580 lbs tp, 755 lbs cp, perf 4163-68 ft, extends fld.

Webb County—Transwestern Oil Co.'s Puig Bros. 1, Albercas gr, 7 mi se Mirando City, abnd 2134 ft.

Williamson County—Stolley & Mills' Burkhart 1, H. Owen sur, 9 mi s Thorndale, abnd 2150 ft.

NORTH TEXAS

FIRST REPORTS

Archer County—W. R. Stafford et al's Richardson-Texaco 1, nwc W. C. McCune sur A-943, lcn.

Clay County—H. L. Hunt Oil Co.'s Langford Inv. Co. 1, 7194 ft n and 4070 ft e of sec of Henderson 386.2-ac tr, and in R. R. Brown sur, A-14, 4 mi ne Byers, trace oil 1472-1506 ft, sd 2505 ft.

Cooke County—Denver Prod. & Ref. Co. (was Vance Powell's) Allred 1, sw part 61-ac tr, G. de los Santos sur, dd from 4582 ft.

Montague County—Bruce Sullivan et al (was W. K. Jones et al's) Johnson 1, sec sw E. T. Ry. sec 5, A-230, dd from 4920 ft.

Throckmorton County—J. W. Robinson et al's Benton Land Co. 1, 150 ft from e and 900 ft from s lines n-172-ac tr, TE&L sec 967, lcn.

Wilbarger County—Bruce Sullivan et al's N. Hamilton 1, nec w½ H&TC sec 47, blk 12, lcn.

Wise County—H. L. Hunt Oil Co.'s Haleman-Pure 1, 709 ft from s line tr, 1000 ft w of ry, Geo. Cash sur A-166, mim for 7000 ft test.

COMPLETIONS

Clay County—Sinclair Prairie's Scheer 1, sw se blk 47, Graves subdiv, Orange CSL sur, top Bend 5880 ft, Mississippi 6123 ft, Simpson 6160 ft, Ellenberger 6363 ft, abnd 6459 ft. N. H. Martin & Sons' McClellan 1, 1783 ft from sw and 150 ft from se blk 22, J. English sur, abnd 1410 ft.

Cooke County—Kimbell-Bohner et al's Phillips-Herman 1, sw part J. Collingsworth sur, abnd 2525 ft.

Jack County—Taubert-McKee and Sinclair Prairie's M. Hoefle 1, 1400 ft from s and 450 ft from w lines Asbury James sur, 4 mi se Antelope, new pool, top Bend 4794 ft, saturation 4817-35 ft, 205 bbls oil 5 hrs ¾-in, L. T. Burns et al's Wright 1, near c se ne Z. S. Brooks sur, Bend 4908 ft, Mississippian 5921 ft, Ellenberger 5972 ft, abnd 5997 ft.

Throckmorton County—A. L. Wasson et al's Erwin 2, 150 ft from n, 1170 ft from w of S. Hudler sur, abnd 816 ft.

Young County — Kerlyn Oil Co.-Phillips Pet.'s E. Taylor 1, near c se nw BS&F-J. A. Holt sec 2, A-2265, new pool, top Bend 4198 ft, broken pay 4205-55 ft, flowed 174 bbls oil 6 hrs. Marie Eckert et al's Gadsberry 2, ne nw TE&L sec 227, abnd 954 ft. J. G. Wooten et al's Wolf 1, SEc TE&L sec 283, abnd 528 ft.

EAST TEXAS

FIRST REPORTS

Leon County—J. R. Elliott et al's C. W. DeVaughn 1, 930 ft from se and 467 ft from sw lines 150-ac tr, Wm. Little sur, mim. H. L. Hunt Oil Co.'s D. A. Sullivan-Magnolia 1, se cor 342½-ac tr, F. Ramirez sur, 2 mi ne Centerville, lcn.

Madison County—Sun Oil Co.'s G. P. Day 1, nwc 90-ac tr, John Crownover sur, Wilcox core test, dr 725 ft.

Rusk County—O. W. Killam et al's Barnett Bass 1, 467 ft from s and 3200 ft from e lines 160-ac tr, J. I. Sanchez sur, 2½ mi n New Salem, blew gas and rotary fluid 4 hrs 2980 ft, unloaded again 2991 ft, fsh drill pipe.

Smith County—B. F. Phillips et al's J. C. McCormic 1, 1400 ft n and 467 ft w of m/e/sec of 385-ac tr, W. W. Avery sur.

COMPLETIONS

Cass County—Strahan & King, Mrs. Sloan Taylor 1, Howard Reams sur, elev 291 ft, top Blossom 2840 ft, abnd, td 2858 ft.

Marion County—Dean Bros., Fee 1, B. F. Weatherred sur, top Pecan Gap, 2290 ft, Woodbine 3615 ft, abnd, td 3663 ft.

Navarro County—J. B. Daniel et al's Mills 1, 3000 ft from m/n/n and 200 ft from e lines T. J. Jordan sur, abnd 3525 ft.

WEST CENTRAL TEXAS

FIRST REPORTS

Comanche County—C. D. Lane et al's Hazzard 1, 3889 ft from nw 1806 ft from ne lines Marmaduke Hatton sur A-424, lcn 2900-ft test. A. H. Woodfin et al's C. S. Robertson 1, swc tract, Eliza Tatum sur, lcn.

Jones County—Merry Bros. & Perini's Lundgren 1, nec w½ ne H&TC sec 20, blk 3, lcn.

Taylor County—Tom B. Medders et al's Moore 1, se sw se T&P sec 74, blk 19, lcn 3150-ft test.

COMPLETIONS

Brown County—R. D. Herring et al's Martin 1, swc ne ne HT&B sec 44, abnd 1503 ft. A. O. Turner et al's White 1, nw part E. Ferguson sur No. 110, abnd 425 ft.

Callahan County—Cordova Union Oil Corp.'s Windham 1, c e½ se se Victoria CSL sec 21, abnd 1508 ft.

Coleman County—Merry Bros. & Perini's Greer 1, 1283 ft from s and 467 ft from w lines lot 2, H. Kegans sur No. 520, new pool, elev 2018 ft, Strawn (Gray) sand 3909-37 ft, 152 bbls 43.7-gr 1-in natural. States Oil Corp.'s Josie Hughes 1, near c e line w½ GH&H sec 34, blk 2, new gas pool, pb from 3566 ft to 3340 ft, shot 40 qts nitro 3310-35 ft, 353,000 ft gas.

Comanche County—J. C. Hamer et al's Smith 1, nec se¼ BBB&C sec 31, abnd 749 ft.

McCulloch County—D. H. Brock et al's Cox 1, near c of Ludwig Javer sur No. 944, top Ellenberger 1128 ft, abnd 1184 ft.

Shackelford County—C. J. Kleiner et al's Dawson-Conway 1, se part Luke Bryan sur No. 24, abnd 1581 ft.

WEST TEXAS

FIRST REPORTS

Pecos County—T. E. Jamison & Chas. Pollard's University 1, c ne sw sec 34, blk 27, lcn.

Terrell County—Skelly Oil Co.'s Ross Roberts 1, c ne ne MK&TE Ry. sec 190, blk D, mim for 7000-ft test.

COMPLETIONS

Garza County—Ed McAdams et al's Stoker 1, c ne H&TC sec 942, blk 97, elev 2378 ft, top salt 735 ft, abnd 3398 ft.

Stonewall County—Shell's Patterson 1-A, ne sw nw H&TC sec 357, blk D, elev 1849 ft, abnd 6827 ft.

Sutton County—M. C. Moore-S. B. Roberts' Allison 1, c s½ s½ ne GH&SA sec 44, blk K, junked 780 ft.

TEXAS GULF COAST

FIRST REPORT

Austin County—Shell's John E. Hintz 1, Sealy area, 167 ac tract George T. Allen sur 180, 990 ft from sw & nw/l's of tr which is w¼ of sec 180, just e of East Fork of East Bernard river, 11,000 ft test, lcn.

COMPLETIONS

Austin County—Woodley Petroleum Co.'s Frank Polcak 1, 2 mi sw Welcome, 45 ac lease S. F. Austin sur, td 7997 abnd.

Brazoria County—Skelly Oil Co.'s Henrietta Vieman 1, 4 mi se Pledger, Daniel McNeel sur 26, td 9964, abnd.

Fort Bend County—Jack Frazier, Ray Ranger & E. I. Thompson's Mason Briscoe 1, 3 mi e'ly from Fulshear, 40 ac lease John Foster 2½ League Grant, td 8011, abnd.

Montgomery County—Glenn H. McCarty's Seyle 1, Magnolia area, John Scott sur, top pay 8549 ft, perf 8448-58 ft, flowed 87 bpd 57.7 gr distillate, gor 13,400-1, thru ¼-in chke, td 10,008, opens field.

Polk County—Pan American's Goodrich Community 1, Goodrich area, Viesca sur, dst 3972-94 ft rec oil cut mud & sw, td 5405 ft, abnd.

Wharton County—Amerada Petroleum's Mrs. Etta Wigginton 1, 10 mi s Pierce, ETRR sur, abstract 98, sec 89, td 7916, abnd.

Tobin Brothers

Accountants and Federal Tax Counselors

SPECIALISTS IN OIL ACCOUNTING AND INCOME TAX

809 First National Bank Building Houston, Texas

THE FORT WORTH LABORATORIES

Analysis of oil field brines, cores, gas, oil, and minerals. Field gas testing. R. H. Fash, Vice President; Long Distance 138. 823½ Monroe Street, Fort Worth, Texas.

Footage Off Slightly As Deep Areas Are Less Active

ALTHOUGH this year has brought somewhat more well completions than last year, footage involved has been a little less, inasmuch as there has been relatively less drilling in some of the outstanding deep-field areas, while activity has increased in some districts of relatively shallow drilling.

Areas that furnish the deepest wells in the country include the Louisiana Gulf Coast, the Texas Gulf Coast, and the Corpus Christi district of South Texas, and all of them have been less active this year than last year, with the result that the nation's drilling footage has been appreciably affected. On the Texas-Louisiana Gulf Coast each well is equivalent in footage to 2 wells of national average depth, and inasmuch as completions for the first 9 months of 1941 were off 500 wells from those in the similar period last year, the shrinkage in footage for the Gulf Coast was equivalent to the footage involved in 1000 average wells. The Corpus Christi area accounted for a smaller reduction of footage, as completions were down only 25 for the 9 months. Arkansas wells of 1941 have been both fewer and shallower than those of 1940, and a similar situation has prevailed in Mississippi, while California has had more but shallower completions, with the result that footage is down.

Shallower Areas Active

Accentuating the reduction of the national average drilling depth and the amount of footage involved in total completions has been the pick-up in drilling in several areas of sub-average depth, including Colorado and Montana, Indiana and Ohio, Pennsylvania and West Virginia, Oklahoma, North Texas, and the San Antonio area of South Texas.

In reflection of the above changes in the various districts in concentration of drilling, the national average depth per well was only 2974 feet for the completions of the first 9 months of 1941, against an average of 3081 feet per well for completions in the similar period of 1940 and an average of 3065 feet for the wells completed in the whole year of 1940.

These averages are based on statistics showing that in the first 9 months of this year, 23,598 wells were completed in the United States, and that those wells had depths aggregating 70,183,679 feet. In the corresponding months last year, there were 23,320 completions with combined depths of 71,851,061 feet. Therefore, footage was down 2.3 percent for this year, while the number of completions was up 1.2 percent.

Actually, both completions and total footage for this year make a little better showing against last year than these figures indicate, as data for 1941 cover only 39 weeks, while those for 1940 cover drilling for 40 weeks.

Average Drilling Depths

(Data revised back through 1933 to show Bradford, Pennsylvania, Completions on **The Producers' Monthly** basis.)

YEAR	Wells Completed	Footage Drilled	Average Depth per Well
1925	25,406	73,677,400	2900
1926	28,995	81,186,000	2800
1927	22,301	66,903,000	3000
1928	19,964	59,892,000	3000
1929	23,463	67,925,285	2895
1930	19,848	57,557,200	2900
1931	11,716	34,259,110	2924
1932	14,290	43,033,422	3011
1933	13,145	38,464,500	2926
1934	20,793	55,103,538	2650
1935	24,273	66,632,035	2745
1936	28,546	80,068,851	2805
1937	33,945	101,105,230	2979
1938	28,060	87,841,493	3131
1939	27,658	84,114,990	3037
1940	30,656	93,971,162	3065
First 9 Mos.:			
1940	23,320	71,851,061	3081
1941	23,598	70,183,679	2974

Completions Above Last Year, But Footage Less as Gulf Coast and Other Deep-Field Areas Furnish Fewer Wells

Prior to 1941, deepened wells were treated as new wells, with total depths counted as footage drilled, and some plugged-back wells were included as completions. In 1941, figures are more exact, showing actual footage added in deepening and eliminating plugged-back wells.

STATE OR DISTRICT	COMPLETIONS			FOOTAGE DRILLED			AVERAGE DEPTH		
	First 9 Mos. 1940	First 9 Mos. 1941	Percent Change	First 9 Mos. 1940	First 9 Mos. 1941	Percent Change	Entire Year 1940	First 9 Mos. 1940	First 9 Mos. 1941
Alabama	6	2	— 66.6	26,402	1,800	— 93.2	3477	4400	900
Arkansas	142	123	— 13.4	769,438	524,999	— 31.8	5169	5418	4268
California	807	863	+ 6.9	4,928,199	4,807,227	— 2.4	6245	6106	5570
Colorado	6	14	+133.3	17,525	42,765	+144.0	3414	2920	3054
Florida	1	....	....	6,010	....	....	6010	6010	....
Georgia	....	1	....	....	1,501	....	....	....	1501
Illinois	3,018	2,850	— 5.6	7,571,021	6,401,924	— 15.4	2473	2508	2246
Indiana	357	401	+ 12.3	685,816	762,220	+ 11.1	1871	1921	1900
Iowa	....	5	....	....	11,248	....	1300	....	2249
*Kansas	1,510	1,673	+ 10.8	4,783,024	5,007,739	+ 4.7	3144	3167	2993
Kentucky	260	246	— 5.4	259,978	270,192	+ 3.9	1023	999	1098
Louisiana:	1,251	1,114	— 10.9	6,646,556	6,468,276	— 2.7	5221	5312	5806
North Louisiana	453	450	— 0.7	1,143,338	1,299,016	+ 13.6	2548	2523	2886
South Louisiana	798	664	— 16.8	5,503,218	5,169,260	— 6.1	6899	6896	7785
Michigan	925	613	— 33.7	1,845,774	1,327,883	— 28.1	1987	1995	2166
Mississippi	149	140	— 6.0	774,435	689,605	— 10.9	5107	5197	4925
Missouri	63	59	— 6.3	58,086	42,631	— 26.6	922	922	722
Montana	136	144	+ 5.9	268,484	313,235	+ 16.7	2062	1974	2175
Nebraska	12	66	+450.0	25,544	138,664	+442.8	2221	2128	2100
New Mexico	512	278	— 45.7	1,673,357	800,768	— 52.1	3212	3268	2880
New York	771	729	— 5.4	996,010	983,605	— 1.2	1308	1291	1349
Ohio	747	1,284	+ 71.9	1,229,716	2,361,852	+ 92.1	1734	1646	1839
*Oklahoma	1,605	1,638	+ 2.1	4,503,074	4,338,773	— 3.6	2788	2805	2648
Pennsylvania	2,888	2,981	+ 3.2	4,887,488	5,084,238	+ 4.0	1706	1692	1705
South Dakota	1	....	....	7,918	....	....	7918	7918	....
Tennessee	21	16	— 23.8	24,150	25,295	+ 4.7	1149	1150	1580
Texas:	7,603	7,731	+ 1.7	28,445,437	28,119,229	— 1.1	3742	3741	3637
East Texas Field	217	437	+101.4	777,462	1,578,710	+103.1	3597	3582	3612
Rest of East Texas	204	419	+105.4	920,941	1,880,110	+104.2	4875	4514	4487
North Texas	1,618	1,843	+ 13.9	4,340,142	4,031,315	— 7.1	2603	2682	2187
South Texas	2,025	1,794	— 11.4	8,035,461	7,596,017	— 5.5	4003	3968	4234
Corpus Christi Area	992	967	— 2.5	5,431,739	5,361,934	— 1.3	5500	5475	5544
Laredo Area	835	619	— 25.8	2,236,717	1,868,078	— 16.5	2693	2678	3017
San Antonio Area	198	208	+ 5.0	367,005	366,005	— 0.3	1926	1853	1759
Texas Gulf Coast	940	575	— 38.8	5,624,734	3,667,749	— 34.8	6074	5983	6378
Texas Panhandle	496	499	+ 0.6	1,515,992	1,506,396	— 0.6	3054	3056	3018
West Texas	1,543	1,700	+ 10.2	6,245,756	7,000,343	+ 12.1	4071	4047	4117
West Central Texas	560	464	— 17.1	984,949	858,589	— 12.8	1829	1758	1850
Utah	2	2	....	11,648	8,486	— 27.1	5904	5824	4243
West Virginia	422	523	+ 23.9	1,048,088	1,347,023	+ 28.5	2530	2483	2575
Wyoming	105	102	— 2.8	357,883	302,501	— 15.5	3364	3408	2965
Total United States	23,320	23,598	+ 1.2	71,851,061	70,183,679	— 2.3	3065	3081	2974

*In 1940, data for Oklahoma and Kansas included plugged-back wells as regular completions, but such wells not included for 1941.

For 27 Years

You have been able to buy

Oklahoma Rig & Supply

GAUGE POLES: Accurate. For oil field tanks and filling stations. Graduated in ⅛ and ¼ inches. With or without non-sparking brass caps.

HICKORY HANDLES: Second growth handles approved by oil company safety departments. Meet government specifications.

WOODEN SHIPPING BOXES: All types, wire bound or nailed.

FILLER CANTS: All types for steel wheels.

OKLAHOMA HANDLES & WOOD WORK RIG AND SUPPLY CO. MUSKOGEE, OKLA.

● Thru Your Supply Store ●

An A.A.P.G. Book (1941)

POSSIBLE FUTURE OIL PROVINCES *of the* UNITED STATES AND CANADA

A symposium conducted by the Research Committee of The American Association of Petroleum Geologists, A. I. Levorsen, chairman. Papers read at the Twenty-sixth Annual Meeting of the Association, at Houston, Texas, April 1, 1941, and reprinted from the Association Bulletin, August, 1941.

●

Edited by A. I. LEVORSEN

●

The purpose of this symposium is to get an over-all picture of the undiscovered oil resources of North America, north of the Rio Grande. Ten geological organizations have participated, to the end that this survey has behind it the authority of many geologists representing state and national geological surveys, large and small oil companies, and consulting and independent geologists. A map and a section of geology, stratigraphy, and structure illustrate each province description.

154 PAGES. 83 ILLUSTRATIONS
CLOTH-BOUND. PRICE. $1.50. POSTPAID
$1.00 per copy in lots of 100
($1.00 to A.A.P.G. members and associate members)

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS
Box 979, Tulsa, Okla., U. S. A.

MEN IN THE INDUSTRY'S NEWS

PAUL H. JONES was elected president of The S. M. Jones Company, Toledo, Ohio, at a recent meeting of the board of directors. He succeeds his brother, Percy C. Jones, who died October 9 at Beaumont. Mason B. Jones was elected vice president and secretary.

MAURICE W. O'BRIEN, 67, president of the Seaside Oil Company, Santa Barbara, California, died October 24 after a brief illness. A schoolmate of Herbert Hoover at Stanford University, O'Brien was graduated in 1895 as a mining engineer and was active in mining in Mexico prior to the Villa revolution.

FRANK L. NEWCOMB, Standard Oil Development Company, Elizabeth, N. J., has been appointed member of the API Committee on Corrosion of Refinery Equipment. Dr. T. G. Delbridge, Atlantic Refining Company, who is chairman of the Central Committee on Refinery Technology, appointed Mr. Newcomb to replace R. L. Duff, resigned.

A. L. WIEST, manager of the lubricants department of Shell Oil Company, San Francisco, has been appointed to the Lubrication Committee of the API Division of Marketing.

VAL FORSYTH of Lane Wells Company spoke on "Gun Perforating and Its Companion Services" at the Seminole, Oklahoma, Chapter meeting of the American Petroleum Institute October 27.

CHARLTON H. LYONS of Lyons & Prentiss, Shreveport, was elected president of the Louisiana-Arkansas division of the Mid-Continent Oil & Gas Association at the annual meeting in Shreveport, October 24. Other officers, all of Shreveport, are John J. Frommer, Ohio Oil Company, vice president; J. T. Goodman, Gulf Refining Company, vice president; D. W. Harris, Arkansas Natural Gas Corporation, vice president; L. M. Moffit, Triangle Drilling Company, vice president; R. J. O'Brien, O'Brien Brothers Drilling Company, vice president; A. R. Campbell, secretary-treasurer.

Members from the division elected to general board of directors are B. A. Hardey, independent, Shreveport; Tinsley Gilmer, Humble Oil & Refining Company, New Orleans; George A. Wilson, Standard Oil Company of Louisiana, Shreveport; Ralph T. Zook, Sloan & Zook Company, Bradford, Pennsylvania.

R. L. Benoit, Ohio Oil Company, Shreveport, was elected chairman of finance committee; A. R. Carmody, North Central Texas Oil Company, Shreveport, membership chairman; Charles H. Blish, Texas Company, New Orleans, legal committee chairman; Guy L. Tate, Magnolia Petroleum Company, Dallas, chairman committee on conservation matters.

Those added to the division's executive committee include H. B. Clifton, Magnolia Petroleum Company; W. A. Watkins, Carter Oil Company; George A. Wilson, Standard Oil Company of Louisiana; A. Dixon Carroll, Magnolia Petroleum Company attorney; J. T. Guyton, attorney, all of Shreveport; and J. K. Wadley of Texarkana.

BENJAMIN EUGENE PARRISH, petroleum engineer with Mission Manufacturing Company, Houston, since 1936, died October 14 at Dallas. He was a drilling contractor for a number of years; spent several years in Mexico where he was vice president of Marland Consolidated Oil Company; in 1930 he was general manager of Cody Petroleum Company, Cody, Wyoming, and bought Cody's interest in 1932. He organized Parrish Tool Corporation at Dallas in 1934. He was the inventor of the Mission Swab.

GUY GUNDAKER, JR., has been appointed manager and Frank R. Stanford operations manager of the store administration department of the B. F. Goodrich Company, Akron, Ohio.

A. ARUTUNOFF, president of Reda Pump Company, Bartlesville, Oklahoma, delivered the principal address before the October session of the American Institute of Electrical Engineers at Dallas, Thursday, October 30.

C. B. DUSHANE, JR. has been appointed manager of the Mid-West territory of American Meter Company. The promotion came in recognition of his 21 years service with the company.

A. S. PARKS of Gas Laboratories, Inc., gave a paper on "The General Principles Affectin Recycling and Repressuring Operations" before the Houston Geological Society, October 29. Joe Tennant of Tennant Company discussed "The General Problems of Installations of Recycling and Repressuring Plants."

J. A. HAYES, plant superintendent, is now at Wichita Falls for Community Natural Gas Company, having been transferred there from Walters, Oklahoma. B. G. Johnson is now field manager for the firm.

R. B. RALSTON, Skelly Oil Company, is a new addition to the firm's Indiana-Illinois scouting staff. Offices are at Evansville.

D. F. McMAHON, land department, is a new addition to Stanolind Oil & Gas Company's force in Tulsa. He was formerly in the scouting department of The Texas Company.

D. ROBERT YARNALL, mechanical engineer of Philadelphia, has been selected as the fifth recipient of the Hoover Medal which will be presented at the annual meeting of the American Society of Mechanical Engineers in New York, December 1-5. The medal is administered by the Hoover Medal Board of Award, consisting of representatives of American Society of Civil Engineers, American Institute of Mining and Metallurgical Engineers, the American Society of Mechanical Engineers, and the American Institute of Electrical Engineers. Yarnall will be awarded the medal for his aid to refugees in this country and Europe and for providing food and relief for children and mothers of Europe.

MILAM DRILLING COMPANY

Operating Throughout Southwest Texas

With Both

STEAM and WAUKESHA ROTARY RIGS

★

ALAMO NATIONAL BANK BUILDING

San Antonio, Texas

Fohs Oil Company

Mellie Esperson Building

Houston, Texas

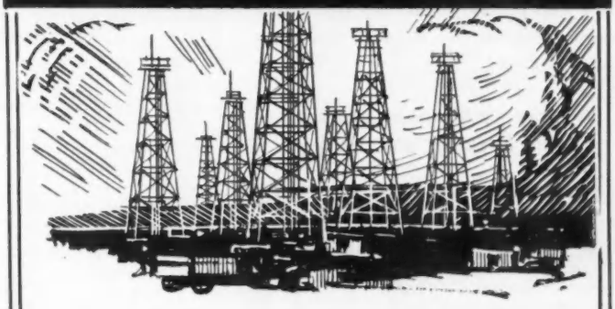
»

Producer of Sweet Crudes

Development of New Fields

Louisiana, Texas and Arkansas

FROM MULES TO MODERN POWER



Beginning at Petrolia back in 1908 with only a span of mules, our operations during the past thirty-four years have extended into California, Colorado, Oklahoma, Arkansas, Mississippi, Louisiana, and all of Texas. From Electra, Smackover, Mexia and Burkburnett to the present, our records show more than 2,000 oil and gas wells drilled under every condition. We have helped push derricks higher — and pipe lower, past 12,000-foot levels in the search for crude. We have used everything from the makeshift equipment of other days to our present modern rigs with gasoline, heavy steam, electric and diesel power. The experience we have gained is invaluable and the 250 men in our organization have a knowledge of drilling second to none in the business. We have come a long way in these thirty-three years and we're proud of our part in helping develop the industry. We look forward to new development with the same anticipation that we had in 1908.

HEAVY STEAM — DIESEL GASOLINE AND ELECTRIC

Al Buchanan DRILLING CO.

SAN ANTONIO, TEXAS

IN helping to make this performance possible, Elastic Stop Self-locking Nuts do double duty. They are used throughout the construction of the famous Lockheed P-38 itself... and on many classes of the petroleum equipment whose product gives life to its engine.

» Write for literature and see data in Composite Catalog

ELASTIC STOP NUT CORPORATION
2360 VAUXHALL ROAD • UNION, NEW JERSEY

Elastic Stop SELF-LOCKING NUTS

PULLING TOGETHER FOR DEFENSE

"NEW BEDFORD" and MID-CONTINENT OIL MEN

Now that first quality Manila rope has been placed under full priority, it becomes our job and yours to help conserve the supply.

Next time you need rope — specify the best rope you can get and take good care of it.

Specify and get "New Bedford" Manila. It has long life and great strength, is rot and water resistant, is smooth and flexible. You use less because it lasts longer and stays stronger.

"NEW BEDFORD" is available at all Continental Supply Stores.

OTHER NEW BEDFORD PRODUCTS:
Cat Lines — Torpedo Lines
Spinning Lines — Bull Ropes

NEW BEDFORD CORDAGE CO.
233 BROADWAY, NEW YORK CITY
MILLS: NEW BEDFORD, MASS.

880

Squeaks from the Bull Wheel

Confession

"My wife's been nursing a grouch all week."

"I didn't know you'd been laid up."

Peace

"You say you never had a quarrel with your wife?"

"Never. She goes her way and I go hers."

Haw!

"Could I have a little money for shopping today, dear?"

"Certainly. Would you rather have an old five or a new one?"

"A new one, of course."

"Here's the one, I'm four dollars ahead."

A.W.O.L.

The major roared to Patrick Malone, who had passed him without raising his hand while on a walk outside the camp, "Don't they teach you to salute in your company?"

"Yes, sir."

"Then why didn't you salute."

"I didn't want to attract more attention than I had to, 'cause I ain't supposed to be out here without a pass."

Lady Be Good!

"Er - ah - sir - I - er - that is - I came to say that your daughter tells me that she - er - loves me."

"Oh! And you have come to ask my permission to marry her?"

"No, sir; I came to ask you to make her behave."

Just Too Much

Private Doaks wanted to slip out of the barracks, unofficially, to see his girl. He went to the sentry to state his case.

"Well," said the sentry, "I'll be off duty when you come back, so you ought to have the password for tonight. It is 'Idiosyncrasy.'"

"Idio what?"

"Idiosyncrasy."

"I'll stay in the barracks."

No Good

"Ah wants to divorce mah husband."

"What's the trouble?"

"Dat nigger's done gone and got religion, and we ain't seen chicken on de table for two months."

Pertinent Point

The teacher had been talking about the principle of turn-the-other-cheek.

"Now, Willy, what would you do supposing a boy hit you?"

"How big a boy are you supposing?"

As Advertised

A Scotchman owned a store. For several weeks his business was not as it had formerly been. He decided to give a gift to each customer on a certain day and placed a sign in his window on the appointed day: "Coat hangar and cigar lighter given away free with each purchase." The people swarmed his store, and each customer received a nail and a match.

Short Stay

Some people are never satisfied. For example, the prisoner who complained of the literature that the prison angel gave him to read.

"Nut'n but continued stories," he grumbled, "an' I'm to be hung next Tuesday."

Professional

"Heh, John!" called out the service station attendant, "Your doctor is out here with a flat tire!"

"Indeed! A most interesting subject!" came the voice of the boss from the rear of the building. "Diagnose the case as flatulency of the perimeter and charge him accordingly!"

For Defense, Probably

A beggar held out two hats to a passerby. "Mister," he said, "will ye gimme a nickel for a cup of coffee?"

"Sure," replied the passerby, "but what's the idea of two hats"

"Well," said the beggar, "business was so good that I had to open a branch."

Oh, Oh!

Good Samaritan (after changing a tire for a lady): "Well I hope that spare will take you home."

Lady Driver: "I'm sure it will. I live only a few houses down the street."

FITLER TRADE MARK "PHILADELPHIA" OILFIELD CORDAGE

FITLER MANILA CATHEAD LINES

There are 3 kinds of Cathead Lines—3-Strand Right Hand Lay, 4-Strand Right Hand Lay and 4-Strand Left Hand Lay. Fitler Brand Manila Cathead Lines are made of Long Fibre, Pure Manila Hemp selected for Strength, Flexibility and Durability; lubricated against internal friction and treated with a Water-Repellent Preparation and Preservative for protection against the elements.

3-Strand Right Hand Lay

4-Strand Right Hand Lay
(Furnished in Right or Left Hand Lay. In Left Hand Lay on special orders only)

ALL FITLER Brand Manila Cathead Lines have a Blue and Yellow Colored Trademark on the outside of one strand, appearing at intervals along the entire length of the Cathead Line.

See Page 753 of the Composite Catalog

THE EDWIN H. FITLER CO.
PHILADELPHIA, PA.
Established 1804

HONOLULU OIL CORPORATION

Welcomes

The

AMERICAN PETROLEUM INSTITUTE

To

San Francisco

▼

Executive Office
215 MARKET STREET
SAN FRANCISCO

LOS ANGELES
807-808 Petroleum Securities Bldg.

MIDLAND, TEXAS
1204-11 Petroleum Bldg.

ANNIVERSARY CONGRATULATIONS

TO

The OIL WEEKLY

from a

T&P PRODUCTS

WEST TEXAS PIONEER

TEXAS PACIFIC COAL and OIL CO.

FORT WORTH

COFFING *"Safety-Pull"* HOISTS
For every lifting and pulling job

Today's demand on every industry requires that all plants be equipped with time and labor saving maintenance and production equipment. Coffing "Safety-Pull" ratchet lever hoists are especially designed for all types of construction and maintenance work. Wherever a lift or pull is needed the "Safety-Pull" will do the job safely, quickly and economically.

"Quik-Lift"
ELECTRIC HOIST

In the production departments, industry has found, the Coffing "Quik-Lift" electric hoist fits perfectly into the picture. It's light in weight, speedy, powerful and dependable. Capacities from 250 to 4000 pounds. Built in a wide range of lifting speeds and motor specifications.

Write today and ask for free Catalog No. TG-4 giving information, specifications, prices, etc., on the complete line of Coffing high efficiency hoisting equipment.

Coffing Hoist Co.
Ratchet Lever, Spur Gear and Electric Hoists
Danville, Illinois

A "PERMANENT WAVE" IS NOT BECOMING TO THE KEL

The Kelly bar didn't get its other name, "grief stem" for nothing. A permanent crook or bend in the Kelly makes itself felt all the way from excess wear in the crown block to fatigue failures in the drill pipe far down in the hole.

Therefore the use of Chromium-Molybdenum (4140) Steel for Kelly bars is a wise precautionary measure. This steel turns out Kellys which stay true and in balance. It has high tensile strength, with uniform properties throughout the mass. The relatively high yield point makes it safe to load the bar nearer the ultimate tensile strength limit without risking a permanent set.

In addition, Kellys made of 4140 have the hardness necessary to stand up against both manhandling and internal abrasion.

Our technical book, "Molybdenum Steels in Oil Production", describes in detail this and many other highly successful applications of Molybdenum Steels in the oil fields. It is sent free on request.

CLIMAX FURNISHES AUTHORITATIVE ENGINEERING DATA ON MOLYBDENUM APPLICATIONS.
MOLYBDIC OXIDE—BRIQUETTED OR CANNED • FERROMOLYBDENUM • CALCIUM MOLYBDATE

Climax Mo-lyb-den-um Company
500 Fifth Avenue • New York City

MOLY

NOTES FOR THE Equipment Buyer and User

Merco Nordstrom Plans Oakland Plant Inspection During A.P.I.

Open house will be held at the Nordstrom Valve factory in Oakland during the week of the A.P.I. sessions in San Francisco. An open invitation to all A.P.I. visitors is being extended by officials of Merco Nordstrom Valve Company and Pittsburgh Equitable Meter Company to inspect the plant and see new methods of valve manufacture and testing.

Arrangements have been made to escort visitors through the plant at all hours, and officials will devote their time in serving as hosts.

The Nordstrom plant is located at the east approach to the San Francisco-Oakland Bridge and can be reached by car within 12 minutes from San Francisco hotels. A fleet of autos will be available to give transportation from all hotels, to and from the plant, at the convenience of guests.

Entertainment headquarters of the two companies will be at the Mark Hopkins, Suite 710, atop Nob Hill, and an additioinal suite has been reserved at the Fairmont, across the street from the former. A.P.I. guests are invited to make these two spots their rendezvous for rest and recreation and are requested to phone the headquarters, Exbrook 3434 for transportation.

Those actively in charge of entertainment and plant tours include Sven Nordstrom; Dave Stratton, general manager of the plant; Russ Waters, Ed Matheson, Ed Hedene, George Scherer and Gilbert Bowman.

The contingent of Nordstrom and Pittsburgh Equitable officials and representatives who are leaving for the San Francisco conclave will be headed by W. F. Rockwell, president; A. E. Higgins, vice president in charge of sales; H. Boezinger, vice president in charge of West Coast sales; Art Kerr and Jack Cottrell, Tulsa; Don Foster, Pittsburgh; Paul Kruech, Chicago; Carl Madison, Houston; Orville Cochran, Kansas City; and Andy Fomilyant, Ernie Adams and Pete Maxfield, all of Los Angeles.

For the convenience of visitors, maps of San Francisco, showing principal spots, are to be distributed at the hotel rooms of the companies.

Franks Manufacturing Celebrates Anniversary

Franks Manufacturing Corporation, Tulsa, this year celebrates its tenth anniversary. In 1930, the founders, H. H. Franks and Carl White, Jr., introduced the idea of utilizing a truck motor for the powering of hoist or winch servicing units through a power take-off, designed to fit trucks. Next, Franks research and designing step was the building of a final friction drive well servicing winch.

These two ideas are still incorporated in the Franks drilling and servicing units which have been pioneered since the firm's organization.

Each of the Franks "firsts" has been designed to afford the fastest rig-up, tear-down, and location-to-location moving as an important step towards more economical operation. The equipment presents savings in fuel, water, labor, moving, and casing, through the use of smaller holes, and has also proved to be economical by eliminating the need of permanent derricks—both for drilling and servicing operations — by making portable derricks an integral part of the unit.

Franks units are in service in oil fields in the United States, Venezuela, Peru, Rumania, Russia, and Greece.

Lubrication

The Farval Corporation, Cleveland, Ohio, has issued an 8-page bulletin, "Why Farval," describing in minute detail the Farval centralized system of lubrication. The booklet deals with the simplicity of the Farval system, illustrates its component parts, and charts the 12 distinct savings effected by the Farval system.

Gears

Cleveland Worm & Gear Company, Cleveland, Ohio, has issued an 8-page booklet, "Background," emphasizing the company's claim for long-range, economical operation of Cleveland Worm Gear Speed Reducers, quoting a series of letters from manufacturers in various industries who began purchasing Cleveland drives 15 to 20 years ago. The reports describe the conditions under which worm gear driven machinery must operate in each particular industry.

Arc Welding

Air Reduction, 60 East 42nd Street, New York City, has issued a new arc welding cost booklet, describing how cost of arc welding can be estimated rapidly for welding any type joint on any thickness with either bare or coated electrodes by use of "Electrode Consumption Calculator."

Booklet tells how many pounds of electrodes are required per linear foot of weld. Calculator includes consumption figures for both bare and shielded arc electrodes on all metal thicknesses commonly employed in making fillet welds, square groove butt joints, "V" and "U" groove butt joints, bevel grooves and "J" grooves. The amount of steel deposited per linear foot of weld is also shown. As a further aid on other joints not shown, the basic formulas used in these calculations are included.

Water Treatment

American K.A.T. Corporation, 122 East 42nd Street, New York, has issued a new paper, "Water Marks." The issue carries short concise technical treatises explaining the scientific phase of K.A.T., short news items about those using the material in various applications and general notes about water treatment and allied subjects. "Water Marks" is published periodically to bring to those interested the latest data, technical and current, pertaining to the use of K.A.T. Organic All-Collodial Water Treatment for boilers, stills and evaporators.

Fred E. Cooper takes delivery on a new 450 horsepower custom built, 5-passenger Howard airplane. Cooper has been flying for a number of years, and uses his airplane almost exclusively when traveling on business. Cooper's first plane was a 5-place Stinson, which was replaced by the faster Howard. During 1940, he spent more than 600 hours at the controls.

LOOK AT THESE PRICES!

This is all you pay for Type AP Wico Magnetos:

6-cylinder model	$48.00 list
4-cylinder model	45.00 list
2-cylinder model	45.00 list
1-cylinder model	39.50 list
Manually controlled impulse	$3.00 extra
Flange mounting	1.20 extra

The finest magneto at any price anywhere. Wico authorized sales and service is everywhere.

WICO ELECTRIC CO.
WEST SPRINGFIELD, MASS.

BOWEN
SAFETY JOINT
for
DRILLING and FISHING

Two-piece sturdy construction. Standard internal and external dimensions. Packers of proven efficiency. Constant distribution of torque load between both sections. Will not release or back off except at the will of the operator.

These features have earned Bowen Safety Joints an enviable popularity in the field.

Patented

LITERATURE GIVING COMPLETE DETAILS UPON REQUEST

BOWEN CO. OF TEXAS, INC.
Office: 2429 Crockett Street, Phone Capitol-6751
P. O. BOX 1025 HOUSTON, TEXAS
Phones: Odessa, Tex., 660—Midland, Tex., 1419
Through Supply Stores Anywhere in U. S. A.

NOW IS THE TIME FOR "ALL-OUT" PRODUCTION

Don't Let Clogged Screens Rob You of Legitimate Profits

The KINLEY SCREEN SHOT opens clogged screens in one simple operation, leaving a clean hole for running an insert. 100% opening of the original liner perforations is assured.

WRITE, OR CALL TODAY

M. M. KINLEY CO.
Explosive Engineers

OIL WELL SHOOTING OF ALL KINDS

Day W-1221 Night H-2064
301 ADAMS HOUSTON

★ Oil Well Fire and Blowout Service ★

NOTES FOR THE Equipment Buyer and User

Officials of Guiberson Diesel Engine Company, left to right, S. A. Guiberson, Jr., Allen Guiberson, M. W. Mattison and Gordon Guiberson

Guiberson Company Gets Contract for Tank Engines

A $2,411,096 plant for the manufacture of radial diesel medium tank motors, under direction of Guiberson Diesel Engine Company, will be erected immediately at Garland, Texas, Defense Plant Corporation, Washington, has announced.

Decision to build the factory was reached when the War Department announced award of contract to Guiberson for large quantities of radial air-cooled diesel engines for the Army's new M-3 28-ton tanks. The new plant will employ a minimum of 500 men.

Guiberson Diesel Engine Company is, under a manufacturer's agreement, already building radial air-cooled diesel engines for light army tanks in the plant of The Buda Company, Harvey, Illinois. The new Dallas plant will be devoted to exclusive manufacture of the larger engine to power the latest Army medium M-3 models. The company has on contract approximately $21,000,000 of engines and parts to be built for the Army.

Shovel-Dragline-Crane

A new 4-page folder, No. 1914, illustrating and describing its ½-yard model LS-50 crawler shovel-dragline-crane, has been published by Link-Belt Speeder Corporation, 301 West Pershing Road, Chicago. Folder particularly covers some of the new design features of this excavator, such as the machine's non-clogging crawler treads; alloy-steel, all-welded lower frame; and the simplified design of the upper machinery. Clearances, dimensions, lifting capacities, and brief specifications, are given.

Houston Nomads Chapter Resumes Activities

The Houston Chapter of Nomads resumed activities October 27 with a meeting at River Oaks country club. The chapter had been recessed for three months during the summer.

Speakers at the meeting were Bert Childs, vice president of Reed Roller Bit Company, and Ray L. Dudley, president of Gulf Publishing Company.

GREATER STRENGTH
LESS WEIGHT
HIGHER EFFICIENCY

UNIBOLT
THE ONE BOLT COUPLING

THORNHILL-CRAVER COMPANY
HOUSTON

IT'S PROVEN RESULTS, LIKE THIS, THAT COUNT!

Cleaning the screen is no longer a serious problem. The Cavins Hydraulic Screen Cleaner is getting results, like that pictured above, every day. Why leave a clogged screen in your well holding back your valuable production? Why not **Call Cavins?**

CAVINS
Houston, Kilgore, Odessa, Corpus Christi, Lake Charles, Houma

CAVINS BAILER SERVICE

EACH IS SAND-BANUM

"The Entirely Different Boiler and Engine Treatment"

Remove and Prevent boiler scale and corrosion with SAND-BANUM. It's the safe, certain and convenient way . . . and so economical.

SAND-BANUM SPECIAL

The simple, safe and certain method of keeping **DIESELS** and other radiator cooling systems free from scale and rust.

SAND-BANUM SPECIAL

AMERICAN SAND-BANUM CO., Inc.

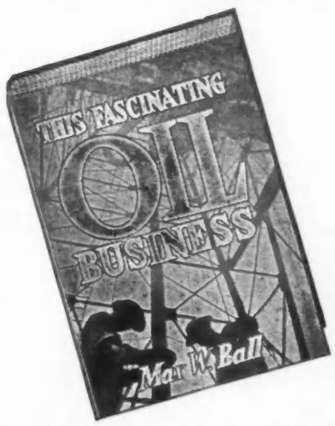
9 Rockefeller Plaza — New York City

WESTERN SAND-BANUM CO.

Houston, Texas — Fresno, Calif.

Export Representative, PETROLEUM MACHINERY CORP.

30 Rockefeller Plaza — New York City



EASY to READ
INVALUABLE
for REFERENCE
COMPLETE and
AUTHORITATIVE

Explore a vast and vital industry by reading this delightful book. Here is the fabulous story of oil from its geologic beginnings to the latest developments in aviation gasoline. Here is the world sweep of oil and its world significance, and here as well is an accurate and detailed story of each division of the industry, from exploration to the final marketing of oil's manifold products.

Profusely illustrated, carefully indexed, this book should be on every oil man's shelf of required reading. It will answer your own questions and help you answer the questions others ask you. The author, Max W. Ball, himself an outstanding authority, has had the cooperation of experts in every field of the industry.

Fabrikoid Bound — 444 Pages — Price $3.00

Send Orders to the

GULF PUBLISHING COMPANY

P. O. BOX 2608 — HOUSTON, TEXAS

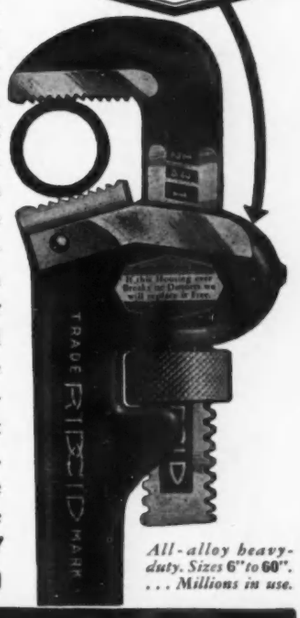
Listen, Mr. Hitler

you've underestimated American fighting tools like this RIDGID wrench

UNCONDITIONAL GUARANTEE
If this Housing ever Breaks or Distorts we will replace it Free
THE RIDGE TOOL CO. ELYRIA, O.

■ ■ ■ and the men who are using them, too! No fooling —not any more. That criticizing and beefing you heard was just Democracy warming up to the job. Someday, when you resign from your present position, we'll be glad to send you a nice folder telling you all about this RIDGID Pipe Wrench with housing guaranteed not to let workmen down while putting together ships and factories, tanks and shootin'-irons and all the other things America is turning out in quantities that you aren't going to like. . . . We make *good* tools over here —and we know how to use them. *Ask any Supply House!*

THE RIDGE TOOL CO., ELYRIA, OHIO



All-alloy heavy-duty. Sizes 6" to 60". . . . Millions in use.

RIDGID
WORK-SAVING PIPE TOOLS

INDEX TO ADVERTISERS

*** Indicates that detailed information on the manufacturer's products or services may be found in the 1941 edition of the Composite Catalog of Oil Field & Pipe Line Equipment.**

A

	Page
J. S. Abercrombie Co.	43
*Abercrombie Pump Co.	195
Acme Gas Lift Co.	127
Ainsworth Bros. Inc.	195
Air Reduction Sales Co.	5
*Ajax Iron Works	89
Alamo National Bank	214
Allen & Morris	180
The Louis Allis Co.	171 and 173
Aluminum Ore Co.	48
American Association of Oil Well Drilling Contractors	260
American Association of Petr. Geologists	264
*American Cable Division American Chain & Cable Co.	II Cover
American Hoist & Derrick Co.	102
*American Iron & Machine Works Co.	181
*American Locomotive Co.	44
*American Meter Co.	18
*American Sand-Banum Co.	271
*American Steel & Wire Co.	23
Axelson Manufacturing Co.	108-109

B

B and W, Inc.	13
*Baash-Ross Tool Co.	175
*Baker Oil Tools, Inc.	1 and 80-81
*Baroid Sales Division National Lead Co.	32-33
Wm. M. Barret, Inc.	262
Mills Bennett Production Co.	250
Bentex Oil Corp.	249
Bovaird Supply Co.	163
Bowen Company of Texas	270
Bridwell Oil Co.	204
Al Buchanan Drilling Co.	265
*Butler Manufacturing Co.	125
*Byron Jackson Co.	I Cover and 114-115

C

Jo H. Cable	262
*Cameron Iron Works, Inc.	166-167
*Cavins Bailer Service	264
*Chain Belt Co.	17
*Clark Brothers Co., Inc.	94-95
*The Climax Molybdenum Co.	268
*Coffing Hoist Co.	267
Columbia Steel Co.	23
Consolidated Oil Co.	243
The Continental Supply Co.	49
*Fred E. Cooper	104-105
*Core Laboratories, Inc.	65
Crane Co.	20
W. H. Curtin & Co., Inc.	102

D

*Darling Valve & Mfg. Co.	6

E

The Eagle-Picher Sales Co.	249
Egan Manufacturing Co.	251
*Elastic Stop Nut Corp.	266
Electrical Treating Co.	215
*Engineering Laboratories, Inc.	79
*Equipment Engineers, Inc.	214

F

The First National Bank & Trust Co.	101
First National Bank of Houston	242
*The Edwin H. Fitler Co.	266
Fohs Oil Co.	265
Fort Worth Clearing House Association	197
Fort Worth Laboratories	262
*The Foster Cathead Co.	246
*Franks Mfg. Corp.	178-179
Jack W. Frazier	199
*Frick-Reid Supply Corp.	122-123
Frost National Bank	248

G

*Gardner-Denver Co.	25
*Gaso Pump & Burner Mfg. Co.	87
*Gatke Corp.	201
*Gearench Mfg. Co.	208
General American Transportation Corp.	164
*General Electric Co.	21
The General Geophysical Co.	205
General Motors Sales Corp.	47
General Petroleum Corporation of Calif.	36
Gilger Drilling Co.	196
Gravity Meter Exploration Co.	212
Howard Greene Torpedo Co.	252
Grubb and Hawkins	261
*The Guiberson Corp.	155
*Gulf Coast Machine & Supply Co.	192
Gulf Oil Corp.	4
*The Gulf Publishing Co.	Opposite 49

H

*Halliburton Oil Well Cementing Co.	III Cover
W. G. (Bill) Hanrahan	191
*Haynes Stellite Co.	90
Helmerich & Payne, Inc.	198
C. K. Hendricks	262
Henshaw Brothers, Inc.	261
*Hercules Tool Co.	159
*Hewitt Rubber Corp.	137
Hollywood Plaza Hotel	254
Honolulu Oil Corp.	267
Houston Laboratories	261
Houston Lighting & Power Co.	112
Houston Pipe Line Co.	243
*Hughes Tool Co.	IV Cover
Humble Oil & Refining Co.	224
*Hunt Tool Co.	143
Hyatt Bearings Division General Motors Sales Corp.	47

I

*Ingersoll-Rand Co.	140-141
The International Nickel Co.	71

J

Jarecki Mfg. Co.	121
*Jensen Brothers Co.	174
*Johns-Manville Corp.	126
Edwin M. Jones	124
The S. M. Jones Co.	67

K

*Kerotest Manufacturing Co.	85
M. M. Kinley Co.	270
*Kinzbach Tool Co.	169
Kirby Petroleum Co.	259
*Kobe, Inc.	50

L

Landis Machine Co.	209
*Lane-Wells Company	132-133
*The Thomas Laughlin Co.	261
*The Layne & Bowler Co.	138
Lebanon Steel Foundry	2
*Le Roi Co.	10
The Liberty State Bank	200
*Line Scale Co.	172
*Link-Belt Co.	7 and 9
Lion Oil Refining Co.	230
Lisbon Iberia Oil Corp.	261
*Lucey Boiler & Manufacturing Co.	42
*Lucey Export Corp.	118-119
*Lufkin Foundry & Machine Co.	24
Luling Oil & Gas Co.	262

M

Macwhyte Co.	3
Magnolia Petroleum Co.	16
Marmon-Herrington Co.	37
*McEvoy Co.	250
Merchants Photo Service	260
*Merco Nordstrom Valve Co.	Insert 16-17
*Metric Metal Works	18
Mid-Continent Oil & Gas Association	260
*Mid-Continent Supply Co.	103
Milam Drilling Co.	265
*Mission Manufacturing Co.	39 and 156-157
*Morse Chain Co.	14

N

National Bank of Tulsa	83
*National Lead Co.	32-33
The National Supply Co.	68-69
Navarro Oil Co.	190
New Bedford Cordage Co.	266
Newman Brothers Drilling Co.	192
*Norma-Hoffman Bearings Corp.	30
Norvell-Wilder Supply Co.	218

O

*The OCS Mfg. Co.	38
The Ohio Oil Co.	194
*Oil Center Tool Co.	151
*Oil City Brass Works, Inc.	189
*The Oil Well Improvements Co.	31
Oil Well Supply Co.	128-129
Oklahoma Natural Gas Co.	182
Oklahoma Rig & Supply Co.	264
W. B. Omohundro	230

P

*The Parkersburg Rig & Reel Co.	74-75
*Patterson-Ballagh Corp.	152-153
*Pelican Well Tool & Supply Co.	253
Petroleum Electric Power Association	247
Petroleum Producers Co.	188
*Pittsburgh Equitable Meter Co.	Insert 16-17
The Producers Supply & Tool Co.	130

R

*Raybestos-Manhattan, Inc.	136
*Reda Pump Co.	90-91
*Reed Roller Bit Co.	148-149
Republic Steel Corp.	15
Republic Supply Co.	135
*The Ridge Tool Co.	271
*John A. Roebling's Sons Co.	185
Rowan Drilling Co.	212

S

*SKF Industries, Inc.	35
*Schlumberger Well Surveying Co.	Opposite 48
Seaboard Oil Co.	213
The Second National Bank of Houston	40
Seismic Explorations, Inc.	93
Seismograph Service Corp.	165
Shell Oil Co.	34
Skelly Oil Co.	134
*Howard Smith Co.	76
*H. C. Smith Oil Tool Co.	117
Ray L. Smith Construction Co.	189
Southwest Producing Co.	262
*Spang & Co.	131
Spang Chalfant, Inc.	29
*Sperry-Sun Well Surveying Co.	210-211
Standard Oil Company of California	26
Standard Oil Co. (Indiana)	176
Strake Petroleum, Inc.	245
The Superior Oil Company of California	12

T

Tank Seal Products Co.	252
Texaco Development Co.	235
*Texas and Louisiana Tool Co.	251
Texas Electric Service Co.	46
Texas Gulf Producing Co.	251
Texas Gulf Sulphur Co.	199
Texas Pacific Coal & Oil Co.	267
Texoma Supply Co.	207
Thompson Tool Co.	237
*Thornhill-Craver Co.	264
Tide Water Associated Oil Co.	96
Tobin Brothers Accountants	262
Edgar Tobin Aerial Surveys	160-161
Torsion Balance Exploration Co.	184
*Tretolite Co.	147
Trinity Drillers, Inc.	213
J. C. Truman Construction Co.	110
*Twin Disc Clutch Co.	22

U

*Union Carbide & Carbon Corp.	99
Union Oil Co.	187
*Unit Rig and Equipment Co.	73
United Gas Pipe Line Co.	244
United States Steel Corp.	23 and 45 and 128-129
United Supply & Mfg. Co.	176
*Universal Atlas Cement Co.	45

W

Warner & Swasey Co.	52
*Waukesha Motor Co.	19
Wellington Oil Co.	206
Western Petroleum Exploration Co.	195
*Westinghouse Electric & Mfg. Co.	41
*The Wheland Co.	27
O. C. Whitaker Co.	183
White-Plaza Hotel	254
*Wickwire Spencer Steel Co.	107
Wico Electric Co.	270
Williams Brothers Corp.	111
*Wilson Manufacturing Co.	5
Wilson Supply Co.	144-145
*Witte Engine Works	248
*Worthington Pump & Machinery Corp.	28

Y

*Young Engine Corp.	191